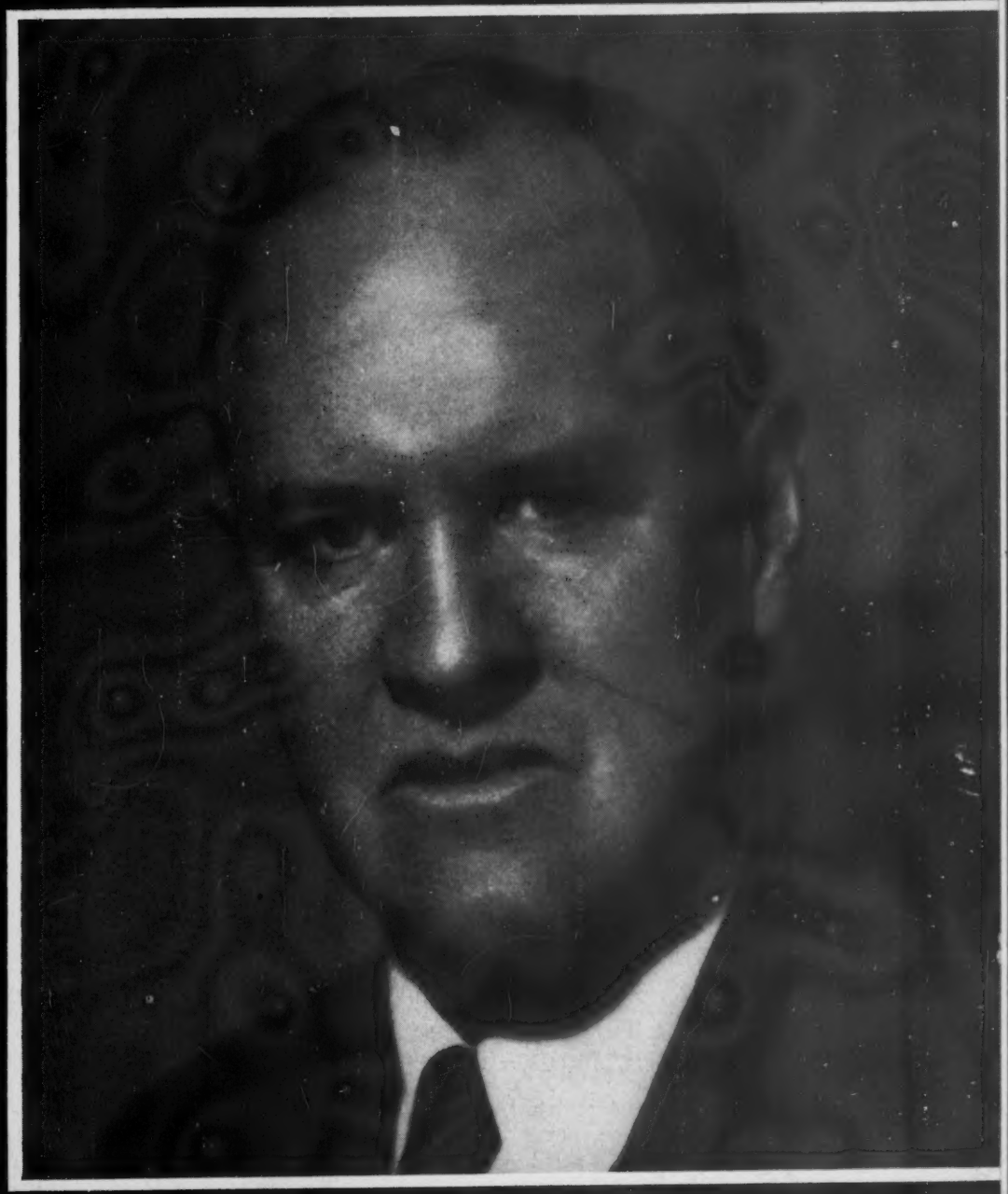
Industrial

Standardization



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  Sheet Metal Screw Statistical Service
  U.S. Cap Screw Service Bur
  U.S. Machine Screw Service Bur
  U.S. Wood Screw Service Bur
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Readers Write

Modular Coordination Article Raises Problem

Tide Water Associated Oil Company
San Francisco, California

Gentlemen: In an article "Modular Coordination in Engineered House" (INDUSTRIAL STANDARDIZATION, September 1947) you state that the 4-in. figure was selected and that the principle of modular coordination is based upon the use of a three-dimensional grid spaced 4 in. in each direction, around which an entire building structure and its component parts can be designed.

In regard to a house plan, you say: "As a basic working unit for the program, a floor plan of 16 x 24 ft has been selected. The proposed plan was carefully analyzed . . . particularly in regard to the controlling width of 16 ft. It was found that this could be easily *spanned*, . . ."

In the plan accompanying this article is shown, presumably, the framework dimensioned with 4 in. width for sills and plates and an inside dimension of 16 ft and an outside dimension of 16 ft 8 in. In all my experience, I have never seen 16-ft lengths of lumber that would permit squaring the ends, and to cut joists from 18-ft lumber seems unnecessarily wasteful. I would appreciate your explanation of this seeming incongruity, particularly as you stress low cost in your article.

H. B. TRUETT

• • A. Gordon Lorimer, technical advisor to the Producers' Council, Inc, and designer of the "engineered house," explained this situation as follows: "You are quite correct that the 16-ft span is an inside dimension and that the exterior dimension is 16 ft 8 in. nominal. As far as structural requirements are concerned, the 2 x 10-in. floor joists 16 ft O.C. can safely span a clear dimension of 16 ft. This permits dry construction in 4 x 8-ft and 4 x 12-ft sheet sizes to be applied to ceilings and walls without needless trimming. We have worked out two details whereby this clear span can be achieved. One detail uses the exact 16-ft joist resting on a 2 x 8-ft sill plate capping the basement wall, the exterior 4-in. dimension being taken up by a continuous header and occasional blocking, or, in other words, a form of 'inside-out' box sill."

Mr Lorimer mentioned the experience with the test houses being erected by the Small Homes Council at the University of Illinois where, he says, greater efficiency has been achieved by using 18-ft floor joists cut to 16 ft by 8 in. nominal, with the end cut being trim-

Company Members

More than 2100 companies hold membership either directly or by group arrangement through their respective trade associations

med at the same time to 14⅝ in. and used to form a single line of solid bridging at the center of the span. Thus it is possible, he says, to process in an organized manner either at the lumber yard or by a saw bench on the site. By this method, the correct number and sizes of bridging pieces are automatically produced, he explains. These can be attached by simple head nailing, one to each joist, and act as a means of producing correct spacing for the floor joists. This solid bridging occurring at midspan serves an additional purpose in that it forms the nailing ground for sheet board materials in the event that a finished recreation room is desired in the basement, without requiring extra blocking or stripping.

Mr Lorimer also calls attention to an illustrated book, *Here's a Better Way to Build*, now being issued by the National Retail Lumber Dealers Association, which covers the points raised in Mr Truett's letter.

What Happens When "Bees Go Flat"

Pacific Electric Manufacturing Corporation
San Francisco, California

Gentlemen: In the August 1947 issue of INDUSTRIAL STANDARDIZATION, you discussed experiments conducted by British bee experts which convinced them that bees can hear. "If a young queen on a frame full of bees 'pipes' her call, consisting of six staccato notes, the bees hearing the call go flat, the beekeepers report." What does it mean when you say, the bees "go flat"?

JOSEPH S. THOMPSON
President

• • Dr Gooding, a member of the Council of the British Beekeepers' Association, who actually used that expression in his lecture at a recent convention of the Beekeepers' Association in London, offers this explanation:

"Normally, bees active under the comb crawl about it on their six legs, their bodies raised above the comb as high as their legs carry them. When the queen 'pipes', they flatten down (or, crouch down) over the comb, tucking their legs under them, so that their underbodies come in close contact with the comb. This flattening process applies only to bees working on the comb."

Frontispiece

The ASA is active in such fields as piping, office work, electrical equipment, industrial safety, building, and consumer goods. Picture credits, reading down: Fred G. Korth, Charles Phelps Cushing, Norton Company, Richard B. Hoit from Cushing, and Charles Phelps Cushing.

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ASA
Reg. U. S. Pat. Off.

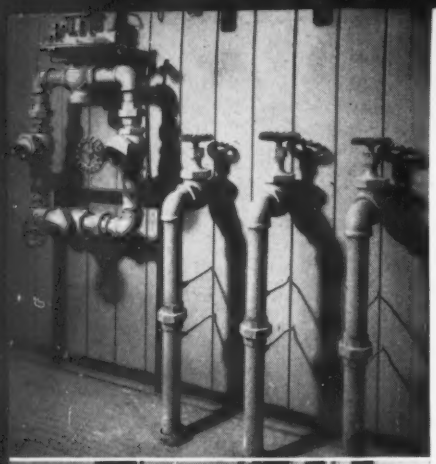
January-February 1948

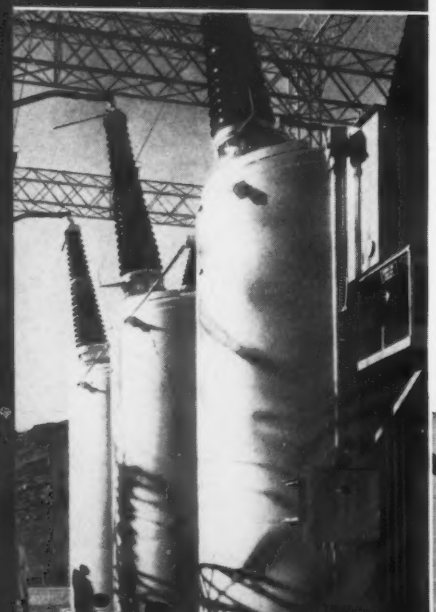
Ruth E. Mason, Editor
Janet Meldon, Assistant Editor

Standardization is dynamic, not static. It means not to stand still, but to move forward together.

Single copy, 35 Cents

Subscription price $4.00 per year (foreign $5.00). Special to schools and libraries $2.00 (foreign $3.00). Re-entered at 2nd Class Matter 7/31/43, at the Post Office, New York, N. Y., Act of March 3, 1879.



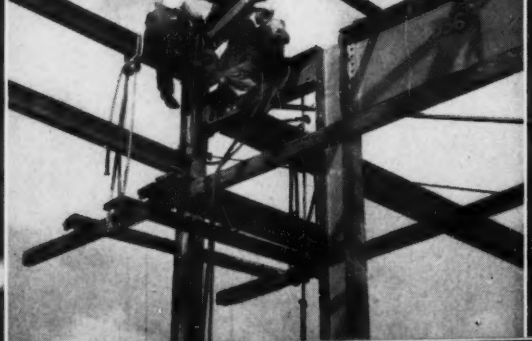


The American Standards Association

1918-1948

When Dr P. G. Agnew became secretary of the American Standards Association (then the American Engineering Standards Committee) the organization was one year old. The staff consisted by Dr Agnew and two stenographers. Today, in its thirtieth year, the Association has a staff of 84, and a record of 871 completed American Standards, with 361 projects under way.

During the intervening years, the work has expanded from the coordination of purely engineering standards into such public interest fields as safety and industrial health standards, building codes, and standards for consumer goods. It has grown from a committee set up by five national engineering societies for coordination of their standards to a national association representing industry, government, public interest, and consumer groups, with international as well as national activities. It now has a membership of 112 national organizations with 2100 companies, and its work represents the consensus of more than 650 organizations which send some 3500 representatives to technical committees.



Through the American Standards Association, government, industry, labor, and consumer work together to develop mutually satisfactory standards. The ASA is the authoritative channel for American cooperation in international standardization work.

Vice-Admiral George F. Hussey, Jr Is New Secretary of ASA

Agnew gives up administrative responsibilities; continues as consultant to give Association benefit of his experience and knowledge of standards

ON January 1, 1948, Vice-Admiral George F. Hussey, Jr, USN (Ret), took office as secretary of the American Standards Association. Dr P. G. Agnew, who had been secretary for 28 years, gave up his administrative responsibilities and became consultant to the Association.

Admiral Hussey is thoroughly familiar with the advantages and possibilities of standardization as a result of his experience in the Navy's Bureau of Ordnance. During the war he was Chief of the Bureau.

Having been graduated from the U.S. Naval Academy with distinction in 1916, Admiral Hussey served in the USS Pennsylvania throughout World War I. In 1920 he began a course in ordnance engineering at the Postgraduate School, Annapolis, and the University of Chicago, where he specialized in ballistics, at Army and Navy Proving Grounds, and at the Navy Yard, Washington, D. C. During his tours of duty at sea, he was successively aide and flag lieutenant on the staff of the Commander of Battleship Division 3, Battle Fleet; executive officer of the USS Farquhar; squadron gunnery officer of Destroyer Squadron 11, Battle Fleet; aide and flag lieutenant on the staff of the Commander-in-Chief of the Battle Fleet; gunnery officer of the USS Salt Lake City, the first modern Navy cruiser carrying 8-in. guns, which he assisted in fitting out; in command of the USS Zane; in command of the USS Decatur; Commander, Destroyer Division 24 (51); Commander, Mine Squadron 3 (2). On December 10, 1941, Admiral Hussey was assigned to command the offshore patrol in the Fourteenth Naval District (off the Hawaiian Islands).

Appointed Chief of Ordnance

Admiral Hussey's shore duty included service as head of the Armor and Projectile Section, Bureau of Ordnance, Navy Department; assistant proof officer and later proof officer at the Naval Proving Ground, Dahlgren, Virginia; head of the Ammunition Section, Bureau of Ordnance, Navy Department; Director of the Production Division, Bureau of Ordnance; and Assistant Chief, Bureau of Ordnance. On December 10, 1943, he became Chief of the Bureau of Ordnance.

Awarded Medal for Service

For his services in the Bureau of Ordnance he was awarded the Distinguished Service Medal with the following citation:

"For exceptionally meritorious service to the Government of the United States as Director of the Production Division, Bureau of Ordnance, from 16 June 1942 to 3 September 1943, Assistant Chief of the Bureau of Ordnance from 4 September 1943 to 10 December 1943, and as Chief of that Bureau from 10 December 1943 to 31 August 1945. Through the exercise of extraordinary foresight, administrative ability and forceful leadership, he directed the design, production and supply of weapons, many of the new and revolutionary types, for the Operating Navy. His conspicuous success in the performance of his duty was a direct contribution to the prosecution of the war."

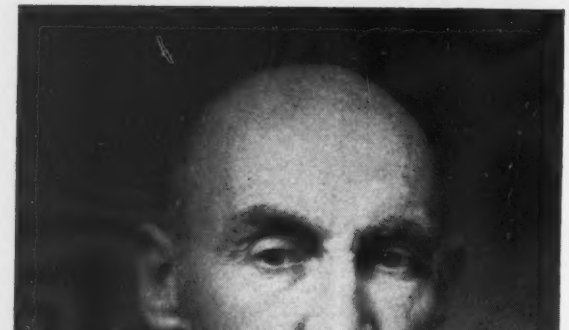
Ainsworth in Charge of Technical Work

UPON taking office, Admiral Hussey declared: "In assuming the duties which Dr Agnew has carried for so long, I shall, of course, make no attempt to take over the technical aspects of standardization. Those will naturally fall to Cyril Ainsworth, assistant secretary and technical director of the Association. When funds permit, there will be additions to the staff in order that the increased scope of the ASA's responsibilities, particularly in the consumer goods field, may be met adequately. These additions will increase the responsibilities carried by Mr Ainsworth."

Mr Ainsworth joined the ASA staff in March 1930 as safety engineer. He came to the ASA with a broad background of experience in the safety field, having been with the Pennsylvania Department of Labor and Industry for eight years. He brought to the ASA this background of direct service in the safety field, plus experience on a number of ASA committees. Mr Ainsworth continued in charge of the Association's safety

program following his appointment as assistant secretary in 1931, but since 1943 he has been in general charge of most of the technical work

(*Continued on page* 3)



P. G. Agnew and the ASA

By E. C. Crittenden

THE release of Dr P. G. Agnew from responsibility for direction of the affairs of the American Standards Association marks an epoch in the history of the Association not merely because of his long service with the ASA, but because throughout the active life of the organization he more than any other man has influenced its policies and practices. He has built up the staff of the Association and guided its work, and at the same time has preached the gospel of voluntary standardization to industry. For many of those who have had a part in its work, ASA means P. G. Agnew.

Agnew was born July 3, 1881, in Hillsdale County, Michigan. He graduated from Hillsdale College in 1901, then went to the University of Michigan for a year, taking a master's degree. After teaching in high schools for three years, he joined the staff of the National Bureau of Standards, which was then only five years old. As a member of the Bureau's Electrical Instruments Section Agnew had a leading part in developing methods and apparatus for alternating-current measurements. Meantime he continued his studies at the Bureau and at the Johns Hopkins University, from which he received the PhD degree in 1911.

When the United States was drawn into World War I and the Bureau was called upon to deal with a great variety of military problems, Agnew became a technical assistant to Dr E. B. Rosa, chief physicist of the Bureau. Besides development of specific military equipment, his administrative duties touched upon industrial problems of supply as dealt with by the War Industries Board, and Agnew became impressed with the importance of industrial standardization. As assistant to Dr Rosa he took part in 1919 in the discussions which led to the broadening of the scope of the American Engineering Standards Committee. His keen logic and forceful character were recognized, and when the enlarged AESC was ready to begin actual operations in 1920, he was the natural choice for its executive officer. From that time on Agnew's biography is the history of the AESC and its successor, the ASA.

The ASA is primarily a federation of organizations each of which carries on standardization work independently in its own way in addition to handling projects under the procedures of the ASA. This combination gives rise to problems not unlike those which plagued the early years of our Federal government. While the ASA claims no right to govern its members or cooperating bodies, it has sought both to reconcile conflicting claims of jurisdiction among them and to stimulate action on projects or in general fields where prog-

***E. C. Crittenden** is associate director of the National Bureau of Standards and chairman of the Standards Council of the American Standards Association. He has been closely associated with Dr Agnew since they both worked at the National Bureau of Standards, and has had an active role in both the American Engineering Standards Committee and the American Standards Association.*

ress has appeared to be unduly slow. As the executive head of the ASA, Dr Agnew has had the responsibility for dealing with these problems, and as a practical way of meeting them the ASA staff has been developed to give more direct assistance to working committees concerned with specific projects.

This trend toward more active work in connection with projects by the ASA office was exemplified by the special procedures devised to provide standards needed by government agencies in World War II. Through his broad knowledge of conditions affecting industrial standardization and his familiarity with governmental procedures, Dr Agnew was able to arrange contracts under which the ASA office served as an agent of the War Production Board and the Office of Price Administration for the formulation of specifications issued as American War Standards.

Dr Agnew has always had a worldwide view, and he has taken a special interest in developing the international connections of the ASA on a practical basis. He took part in the series of conferences leading to the formation of the International Standards Association which the ASA joined in 1929. He guided the negotiations which merged the United States National Committee of the International Electrotechnical Commission with the Electrical Standards Committee in the ASA organization in 1931. Through collaboration with the Coordinator of Inter-American Affairs he obtained support for the ASA in developing closer relations with the standardizing agencies which are growing up in Latin America. He had an important part in setting up the temporary wartime United Nations Standards Coordinating Committee, and was a dominant figure in the conferences of New York, Paris, and London leading to the establishment of the International Organization for Standardization (ISO) in 1946.

The ASA is fortunate in being able to retain Dr Agnew as a consultant, since the new administration can draw upon his wealth of experience; and freedom from the daily demands of operating management may give him opportunity to develop the philosophy of standardization as an essential contributor to progress.

Resolution Adopted by Board of Directors

At its meeting December 19, the Board of Directors unanimously voted the following resolution:

WHEREAS, Dr P. G. Agnew is retiring on December 31, 1947 as secretary of the American Standards Association after a service of 28 years with the ASA and its predecessor, the American Engineering Standards Committee—a period covering practically the entire life of the organization; and

WHEREAS, During this period Dr Agnew has been primarily responsible for building the organization and developing the work of the Association; for establishing the ASA as the authoritative medium for coordinating standards in the United States; and for promoting United States cooperation in international standards; and in all of these activities has maintained the integrity of purpose of the Association; therefore be it

Resolved, That the Board of Directors express its high appreciation of Dr Agnew's very able and devoted service and of the exercise of his great abilities on behalf of the standardization movement; and be it

Resolved, That this resolution be spread on the Minutes, and a copy of it be presented to Dr Agnew.

Tribute by the ASA Staff

As a tribute to Dr Agnew upon giving up his active administrative responsibilities, the staff of the American Standards Association presented to him a 13-volume set of the Oxford English Dictionary, and a scroll expressing appreciation of his services to the ASA and of the privilege of having worked with him. "All of us can assure you that we have taken pride in working for an organization which was established under your direction as one of high integrity and democratic principles," it declared. The scroll was signed by every member of the staff.

Ainsworth in Charge of Technical Work

(*Continued from page* 1)

of the Association as technical director.

Mr Ainsworth is well known nationally and internationally. In 1935 he was appointed by the Secretary of Labor as a member of the Safety Advisory Committee to the Division of Labor Standards of the U.S. Department of Labor and has continued as a member to the present time. He was also a member of the permanent committee on regulations for the employment of minors in hazardous occupations set up by the Children's Bureau of the U.S. Department of Labor in 1939. He served as chairman until he resigned from the committee in 1946.

He has been a member of the Executive Committee of the American Society of Safety Engineers—Engineering Section, National Safety Council, since 1933, and has been active in developing it as an independent organization (see page 19). Mr Ainsworth is now secretary of the Greater New York Safety Council, and served as its vice-president from 1942 to 1945.

In addition to his activities in connection with the development of the International Organization for Standardization, Mr Ainsworth is a member of the Committee on Accident Prevention of the International Labor Organization. He was appointed in 1934 when the ILO was still a division of the League of Nations.

Mr Ainsworth now has under his direct supervision the technical work of the seven correlating committees and nine staff engineers. These cover standardization work in mechanical engineering, building standards and building codes, electrical engineering, industrial safety and industrial health standards, consumer goods, office equipment, photography, acoustics, mining, highway traffic, and such standards of general interest as letter and graphical symbols, drawings and drafting room practice, and abbreviations for scientific and engineering terms.

Director of BSI Elected To Head Engineering Group

Percy Good, director of the British Standards Institution, was elected president of the Institution of Electrical Engineers in October. The subject of his presidential address, given before the society in London, was "The Philosophy and History of Standardization."

Chinese Enforce Use of Metric System

In accordance with an old law heretofore not rigidly enforced, the Chinese Bureau of Weights and Measures is now prohibiting the importation of measuring devices not calibrated according to the metric system, reports the *Foreign Commerce Weekly*.

Imports of calibrated instruments into China constitute a considerable volume of business, a large share of which is of United States origin. Instruments imported from the United States have hitherto been standardized on the English system. In addition, large numbers of machine tools in Shanghai have been calibrated on the English system.

An "Application Procedure Relative to the Importation of Measuring Devices" to be executed by the importer of measuring instruments has been issued by the Bureau of Weights and Measures. Information about this application may be obtained from the Office of International Trade, U. S. Department of Commerce, Washington 25, D. C.

Standards from Other Countries

The standards listed below are a few of those received recently by the ASA Library from other countries. They are available only in the language of the country from which they were received.

Argentina

Chrome Nickel Steels for Refining, IRAM-536P
Cleaning of Iron and Steel Structures for Painting, IRAM1042P
Preferred Numbers, IRAM7P
Preferred Diameters and Other Lineal Dimensions, IRAM11P

Czechoslovakia

Alphabetical Classification, CSN1410-1947
Bricklayers Tools, CSN1179-1947
Cast Iron Scrap, CSN1119-1947
Cement, CSN1213-1947
General Condition for Building Contracts, CSN1430-1947
Keys, CSN1005-1947
Light Hollow Concrete Bricks, CSN1273-1947
Peat, CSN2225-1947
Rivets (Diameter 10-42mm), CSN1004-1947
Scrap Iron and Steel, CSN1441-1947
Steel Door Frames, CSN2041-1947
Testing of Gas Appliances, Part 1, CSN1471-1947
Wooden Doors, CSN2021-1947
Works and Supplies for Bridge Building, CSN1233-1947

France

Chemistry—
  Animal Fats and Greases, T62-001, June 1947
Domestic Economy—
  Auxiliary Apparatus for Gas Heating Systems (Thermostats, Valves, Pilot Lights, etc), D35-333, January 1947
  Gas-Heated Boilers for Water and Low-Pressure Steam Central Heating Systems, D35-331, January 1947
  Various Types of Gas Heaters, D35-332, January 1947
General Fundamental Standards—
  Statistics; General Terminology, X05-001, June 1947
Marine Construction—
  Condenser Tubes; Dimensions, J66-105, November 1946
  Nomenclature, Dimensions, Specifications, and Descriptions of Various Types of Engine Rooms, Flooring, Stairs, Hand Railing, etc, J68-110 to J68-230, April 1947
  Various Forms of Bank Receipts for Cash and Checks, K11-22 to K11-25, April 1947
Metallurgy—
  Chemical Analysis of Steel and Cast Iron, A06-313, August 1943
Microscope Test, Table of Magnification and Reagents, A05-102, May 1947
Paper and Cardboard—
  Table of Widths of Paper Rolls Used in Electrolytic Condensers, Q33-003, April 1947
  Table of Widths of Paper Rolls Used in Static Condensers, Q33-004, April 1947
Railroad Material—
  Coupling Hook for Normal Gage Rolling Stock, F10-401, January 1947
Textiles and Leather—
  Woolen Blankets, 100% Pure Wool and Mixed, G34-001, July 1947
Various Industries—
  Terminology of Material Used in Fire Fighting Installations, S60-101, April 1947

Italy

The ASA Library recently received 433 approved Italian standards. Some of the condensed subject groupings are given below. Individual titles are in the process of translation.

UNI 1858 through 1929, Various Types of Hand-Operated Remote Control Transmissions for Shipboard Installation and their Details
UNI 1930, Textile Testing, General Rules
UNI 1955 through 1956, Vickers Hardness Test of Metals
UNI 1957 through 1975, Various Types and Sizes of Bulkhead Pipe Fittings for Marine Pipe Lines; Light Series
UNI 1976 through 1984, Bulkhead Flanges for Marine Pipes; Light Series
UNI 1985 through 1995, Automobile Electric Bulbs
UNI 2010 through 2011, Trolley-Bus: Electric Motor Ratings; Gear Ratio; Speed; Shaft End
UNI 2012, Table of Various Grades of Semi-finished Copper Products
UNI 2015, Lead, Specifications
UNI 2016, Preferred Numbers
UNI 2017, Nominal Linear Dimensions of Mechanical Parts
UNI 2018 through 2029, Various Types and Sizes of Turnbuckles
UNI 2030, Cylindrical Nuts
UNI 2031 through 2035, Mechanical Test of Rubber

Poland

Classification of Grey Cast Iron, H751
Countersinks and Reamers, N146, 195 to 200
Details of Mould Construction, H854
Files, N4314 to 4316, 4319, 4321
General Specification for Machine Tools, N501
Hammers, N1512
Handles, N571
Hand-Tools (Pliers, Wrenches), N1801, 1802, 2022
Lathe Centers, N295, 430 to 432
Limits and Fits, N1
Pipes and Fittings, Dimension of Bolt Holes, B1072
Taper Shaft Ends, N266, 270 to 272, 280, 285, 286
Various Industrial Chemical Products Such as Oleic Acid, Glycerine, Glues, Tar, etc C302, 303, 330, 332, 411, 412, 504, 506, 507, 510, 606, 607
Various Types of Twist-Drills, N106, 108, 110, 113

ISO Committee on Textiles To Meet in England in June

A meeting of the Technical Committee on Textiles of the International Organization for Standardization is planned for June 7-12. In connection with these meetings, the British Standards Institution has informed the American Standards Association that the British Textile Institute is holding its annual convention in Buxton, England, on June 2-5 and has invited interested persons from this country. The BSI suggests that these meetings will provide an opportunity for American and British delegates to discuss the following:

(*a*) Coordination of methods of tests for textiles, commencing with conditioning of test samples and tensile tests;

(*b*) Methods of test for rayon—yarn and fabrics—which have been prepared as a revision of the Bureau International pour la Standardisation des Fibres Artificielles rules;

(*c*) Definition of the term "rayon";

(*d*) Standardization of textile machinery.

It was also suggested that this meeting will enable the ASA and BSI to get together and discuss subdivision of the international work on textiles and make recommendations concerning the secretariat for the international project on textile test methods.

New Members of Standards Council

THE following new representatives have been appointed to the Standards Council, through which the Member-Bodies of ASA supervise all of the technical operations of the Association:

Heating, Piping and Air Conditioning Contractors National Association—

Rowland Tompkins of Rowland Tompkins and Son succeeds Harry M. Hart for his unexpired term ending December 31, 1948. He is a member of the Mechanical Standards Committee, the Sectional Committee on Pipe Flanges and Fittings, B16, and the Sectional Committee on Unification of Rules for the Dimensioning of Furnaces for Burning Solid Fuel, B50.

Institute of Radio Engineers—

A. B. Chamberlain, chief engineer of the General Engineering Department of Columbia Broadcasting System, succeeds Dr Alfred N. Goldsmith for his unexpired term ending December 31, 1948.

R. F. Guy, National Broadcasting Company, will act as Mr Chamberlain's alternate.

Manufacturers Standardization Society of the Valve and Fittings Industry—

William P. Kliment, engineer of standards, Engineering and Research Division, Crane Company, has been appointed to serve on the Standards Council for a three-year term from January 1, 1948, to December 31, 1950, succeeding John P. Magos. Mr Kliment is also serving as alternate on the Mechanical Standards Committee and is a representative on the Company Member Committee and sectional committees on Safety Code for Mechanical Refrigeration, B9; Pipe Flanges and Fittings, B16; and Bolt, Nut, and Rivet Proportions, B18.

L. W. Kattelle, assistant chief engineer of the Walworth Company, will continue to act as alternate. Mr Kattelle is a member of the Mechanical Standards Committee, the Board of Examination, sectional committees on Pipe Thread, B2; Standardization of Dimensions and Material of Wrought Iron and Wrought Steel Pipe and Tubing, B36; Code for Pressure Piping, B31; and Pipe Flanges and Fittings, B16. He also serves as alternate on the sectional committees on Standardization and Unification of Screw Threads, B1; and Safety Code for Mechanical Refrigeration, B9.

National Conservation Bureau—

T. B. McMath, director of the Division of Inspection and Accident Prevention, Maryland Casualty Company, succeeds Holger Jensen as representative. Mr McMath also serves on the following sectional committees: Code for Protection Against Lightning, C5; Safety Code for Industrial Sanitation, Z4; and Specifications and Methods of Test for Safety Glass, Z26.

Portland Cement Association—

A. J. Boase, manager of the Structural and Railways Bureau, Portland Cement Association, will serve as its representative on Standards Council. He is a member of the Sectional Committee on Building Code Requirements for Fire Protection and Fire Resistance, A51, and an alternate on the Sectional Committee on Building Code Requirements for Excavations and Foundations, A56.

J. P. Thompson, of the Portland Cement Association, will continue to serve as alternate. Besides being an alternate on Sectional Committee A51, he is a representative on the Sectional Committee on Building Code Requirements and Good Practice Recommendations for Masonry, A41.

U. S. Department of the Interior—

L. J. Snyder, Bureau of Reclamation, has been appointed for a three-year period beginning January 1, 1948. He succeeds M. A. Seiler whose term expired.

D. K. Dotson and *L. E. Cliffe*, both of the Bureau of Reclamation, will serve as alternates to Mr Snyder. They succeed D. S. Culver. D. Harrington will continue as alternate for A. C. Fieldner, the Department's second representative.

American Society of Bakery Engineers Joins ASA As Associate Member

Founded in 1924, the American Society of Bakery Engineers, newest Associate Member of the American Standards Association, has the prime object of keeping production men in the baking industry informed of all technical and mechanical advances in their field.

One of the main ways of accomplishing this is through the annual meetings of the Society, at which time leaders in the various departments of bakery research report their findings to the members. Later, this information, supplemented by bulletins issued from time to time, is circulated in book form to the membership.

J. M. Albright

To keep posted on all current matters, special committees study and report on general problems of the industry—shop organization, personnel, mechanical layout, operating difficulties, etc. The Standardization Committee, for instance, works closely with the equipment manufacturers and has set up experience depreciation rates for equipment that have been accepted by the industry. Through this committee, too, the Society has issued recommended standards of sizes and capacities of bakery equipment, which are generally in use in the industry. The Safety Committee cooperates closely with the National Safety Council.

Active in the ASA for many years, the American Society of Bakery Engineers is sponsor of the sectional committee on bakery equipment, Z50. As a result of the work of this project, a safety code has just been approved—the American Standard Safety Code for Bakery Equipment, Z50.1-1947.

J. M. Albright, who is in charge of the bakery for Marshall Field and Company, Chicago, is president of the Society.

Left to right:—T. B. McMath, A. B. Chamberlain, W. P. Kliment, Rowland Tompkins, and L. J. Snyder.

The American Standard On Surface Roughness

A symposium of three articles on this important new standard

Why a Surface Roughness Standard?

By R. F. Gagg

NEARLY everyone who has contact with manufacturing meets the problem of determining whether a machined surface is proper for its intended use, whether a different finish could be substituted, whether the cost of the finishing operation could be reduced without a performance penalty, and many similar questions. Without a reasonably exact measure of the quality of surface finish, the discussion generally resolves itself into an argument which largely rests on personal opinions and interest. In production shop work the most important consideration is generally the smoothness, or conversely, the roughness of a machined surface.

R. F. Gagg, *assistant to the general manager of the Wright Aeronautical Corporation, is chairman of the Sectional Committee on Standardization of Classification and Designation of Surface Qualities, B46. This committee, which developed the American Standard for Surface Roughness, Waviness, and Lay, Part 1, B46.1-1947, works under the sponsorship of the American Society of Mechanical Engineers and the Society of Automotive Engineers.*

Experience indicates that confusion frequently is encountered because the terms "surface finish" or "surface quality" include several different characteristics, and descriptive terms are by no means always used in the same sense. An agreement on terminology and definitions is obviously necessary. This was therefore the primary task undertaken by the committee which began work in 1932 on standards for surface quality under American Standards Association procedure. The surface of a material may be defined as the boundary which separates that substance from other materials, and its physical characteristics are called surface qualities. These qualities are dependent upon the geometry of the surface, the structure of the material (crystalline form, chemical content, etc), as well as on the molecular characteristics of the surface layer of the material and its surroundings.

The standardization of surface roughness is concerned principally with the relatively closely spaced geometrical irregularities of nominally smooth surfaces of solid materials having gradations of roughness in the range called "machined finish" in industry. It does not cover what grade of surface roughness is adequate for a specific usage. This information must be provided by the experience of the individual making the selection. It does not cover the means by which a specified grade of surface roughness may be produced, as the procedure required will vary widely with the material used, with available tools and processes, with the volume of work involved, and with numerous other items related to the skill and means of the producer. However, by use of a specific definition of roughness and a measurement of the degree of roughness in terms of the standard linear inch, means are provided for control of shop practice without limiting the utilization of whatever procedure proves most suitable for the problem in hand.

It is obvious that a standard of surface roughness alone leaves untouched many important surface qualities, such as luster, appearance, color, resistance to corrosion, size and shape of surface flaws, hardness, microstructure, absorption characteristics, etc. Any one of these or other characteristics might be a governing consideration in a specific application.

A practical approach to measurement and control of surface roughness must be based upon the physical

dimensions of surface irregularities which can be interpreted in terms of the established standard of linear measurement. The reference standard should describe or specify the roughness of the surface itself in a reasonable and direct way, without reference to the means of obtaining or reproducing the specified degree of roughness. This is in agreement with the proved procedure by which the designer of apparatus specifies the attainment of a specific result (such as size or hardness) without interfering with the freedom of the producer to utilize the means best adapted to attainment of the desired end. This does not mean that two surfaces having the same degree of roughness but produced by different processes will have similar characteristics in regard to surface qualities other than roughness. Quite the reverse is possible, and such other qualities may be matters of primary importance in evaluating the suitability of a surface for a specific use.

Practical shop problems involving acceptability of a surface finish are generally concerned with relatively small differences in surface roughness. Large differences in degree of surface roughness are immediately apparent upon visual examination. It is in cases where the differences in the degree of roughness are small that trouble is likely to develop.

Roughest Portion of Surface Determines Suitability for Use

The degree of precision of visual examination may become a matter of argument, and in such cases it is necessary to resort to some sort of dimensional measurement of roughness to settle the question. The roughest portion of a surface under discussion can generally be determined by visual observation, so that it is unnecessary to measure every portion of the surface. For most industrial applications, the roughest portion of a surface is the part which determines its suitability for the intended use. There are some cases, such as in the preparation of sheet metal for painting, where the reverse is true. However, for nearly all industrial work it is satisfactory to consider the roughest portion of a surface as the governing consideration.

A roughness determination for a specific surface should be fairly representative of substantially the roughest portion of that surface. If the roughness varies with directional disposition of elements of the surface, the direction resulting in a maximum roughness value should be used for the measurement.

It is important to note that individual scratches or other surface flaws, such as minor inclusion in a steel forging, should be ignored when considering roughness. Flaws and scratches may be extremely important in considering the utility of the surface, but they are something apart from surface roughness, and the two must not be confused. Even individual shop tolerances for presence of surface flaws must await development of apparatus suitable for measuring their size and other characteristics. There are, fortunately, indications of progress in this direction.

For many industrial uses, an integration or average of the geometric details appears to be the most significant single measurement of surface roughness. For some purposes the maximum single deviation from a nominal surface is the most important consideration, but for a majority of applications the average deviation from the nominal surface is a more significant value. This point can well be illustrated by a bearing surface in which a single scratch or minor ridge on the journal does not completely spoil its usefulness. It is the "average" surface which supports the bearing load. Most shop men will agree, for example, that the appearance of a bearing surface is a sort of visual average of the surface roughness, and is a fair indication of its usefulness for that purpose.

How the American Standard Was Developed

As Described by R. F. Gagg

On the recommendation of the American Society of Mechanical Engineers and the Society of Automotive Engineers, the American Standards Association recognized the need for standards for the designation of surface qualities for use in scientific work and in industry, and in March 1932 authorized the organization of Sectional Committee B46 for the Standardization of Classification and Designation of Surface Qualities. The committee was organized under the sponsorship of the American Society of Mechanical Engineers and the Society of Automotive Engineers.

At its first meeting in 1932 there were about 40 or 45 people who were enthusiastic about the prospect for progress. At this meeting the sectional committee reviewed the field of proposed activity, the many problems which confronted it, and the best methods of attacking them. As the first step, it was decided to have subcommittees make detailed studies of the several branches of the subject which have a substantial importance in industry. These subcommittees held many meetings between 1932 and 1936, and in the latter year an executive committee was appointed to review the progress made, to establish a program for future work, and to steer the future activities of the committee.

The executive committee adopted a program having as its first objective the formation of a standard for the classification and designation of surface roughness only. A number of drafts of the proposed standard for surface roughness, primarily directed toward machined surfaces of metals, were prepared. This involves a wide diversification of views and opinion on the methods to be applied and the procedures to be followed, since there are wide differences in individual methods and problems. After a long series of meetings carried on in the subsequent three years, the executive committee and its subgroups came to the conclusion that the extreme diversification of opinion would not permit reaching a consensus on a standard for determination of surface qualities of finished metals. It therefore concluded that the best compromise to be had was to write a standard which permitted within its scope utilization of the practice and principal methods which the various industries and users had found most practical.

The American Standard for Surface Roughness, Waviness, and Lay (see description by E. R. Boynton below), in deference to the various points of view, permits the specification of the height of the roughness or waviness in one of the following terms:

Maximum Peak to Valley Height
Average Peak to Valley Height
Average (either Root Mean Square or Arithmetical) Deviation from the Mean Surface

These three viewpoints represent the characteristics of the almost irreconcilable points of view expressed by very sincere members of the subcommittee. Everyone feels dissatisfied with the terms of the published standard and looks forward with anxious anticipation to a revision of the standard into more specific terms at a relatively early date. Their belief that this will occur is founded upon the experiences of those people who have adopted the standard. After a trial period most of them have come to the conclusion that the extreme viewpoints tend to converge on a median position in actual practice.

To outline all of the methods and instruments which have been used for measuring surface roughness is beyond the scope of this discussion. Brief mention of a few procedures which are being used in industrial work must suffice. No universally acceptable instrument for measurement of roughness has appeared. Every method has its own peculiarities and advantages, and it seems probable that a variety of measuring procedures will continue in use to fit special conditions.

Variety of Optical Instruments Used for Direct Measurement

Optical instruments for direct measurement of specific roughness have been used in a wide variety of forms. A few have been developed to give a measurement which can be interpreted in terms of the Standard Scale of Roughness, but none of this type have been adopted widely by American industry. Much useful information about the character of the surface can be gained by the use of these optical devices. "Darkfield" illumination is particularly useful for very smooth surfaces. The possibilities of optical methods have by no means been fully developed, though at present they lack several practical advantages available in other instruments which are particularly important in shop work.

It is quite interesting to note that the unaided eye can match degrees of surface roughness on similar parts finished by similar processes (such as grinding) with a relatively small error. Discrepancies in matching such samples normally will not exceed about 15 percent of the roughness measurement in microinches.

A little personal experimentation with the finger or finger nail will show remarkably acute perception of surface roughness provided that the finger is drawn over the surface at a velocity which transmits vibrations to the nerve ends at the frequency resulting in maximum response to the stimulation. The great trouble with this form of roughness measurement is that the results are purely personal and promote rather than settle questions of surface quality.

Tracer-Type Instruments Found Practical in Shop Use

Mechanical tracers drawn over the surface being measured for roughness appear to be the most practical instrument for use in control of shop practice.

The Abbott "Profilometer" is a tracer-type instrument which makes a roughness determination directly as a root mean square average by electrical means. It normally utilizes a dial and electrically actuated pointer as the final indicator, but also can be adapted to produce a profile diagram if desired. The results obtained depend in some degree on the skill of the operator, though they are recognized as being quite reliable and reproducible. It has been used widely by industry in recent years.

The Brush "Surface Analyzer" is another form of profile-tracing instrument which is well suited to shop use. It normally produces a profile diagram for a small portion of the surface being examined, which gives a more direct indication of the detail character of the surface than can be obtained from a meter reading. The facility with which the diagram is obtained makes this instrument particularly useful in process development work in the factory.

Numerous other instruments are in use or in course of development, and each has its peculiar advantages and limitations. No instrument now available represents the peak of accuracy. At least it is safe to assume absence of perfection. Profile-tracing instruments are most often questioned as to accuracy because they can most readily be subject to check. A standardized procedure for proof of accuracy is much needed and should be provided at an early date by cooperative action. An agreement as to procedure to be followed in interpretation of profile diagrams and other results in terms of the Standard Scale of roughness is also needed. Though this is a somewhat more controversial item, it is hoped that cooperative action will provide a solution. In this connection, the principal current activity of the committee is to prepare a standard which will be supplementary to the present edition of the standard, covering the use and control of surface roughness specimens. The purpose of this standard is to provide for a series of 24 specimens to include various degrees of surface roughness varying from 2 to 500 microinches. This covers, with considerable latitude, most of the actual practice in production shops engaged in the shaping of metal into surfaces of good quality.

The proposed standard is now being circulated for approval of committee members and it includes what amounts to a specification covering a proposed set of sample blocks and a certification that the product is made in accordance with the American Standard for such flat surface specimens. That will make available to small production shops samples which can readily be used in a very wide range of shop practice for the control of surface finishes since visual comparison with a standard specimen generally suffices for inspection. The control of surface waviness in shop practices is not widely used at present. That is the result of the fact that a great many industrial fabricators do not recognize the type of dimensional variations defined as waviness, nor have they found it necessary to require its control. However, optical instrument manufacturers and certain other precision industries find it useful and necessary.

It is encouraging to note that most of the practical applications of the control of surface finishes made during the war were in general conformity with the basic requirements of the American Standard. These applications of surface finish control practice in industry do represent a forward step in the use of scientific controls in the art of finishing the surfaces of metals and other materials.

What the Standard on Surface Roughness Covers

By E. R. Boynton

ON February 5, 1947 the efforts of many persons interested in the subject of surface roughness and its specification came to fruition with the adoption by the American Standards Association of the American Standard for Surface Roughness, Waviness and Lay, B46.1-1947.

This standard, prepared by a sectional committee under the sponsorship of the Society of Automotive Engineers and the American Society of Mechanical Engineers, is divided into seven sections. The first section prescribes the scope of the standard and points out that it does not attempt to answer the question of what kind of surface to use for any specific purpose or how to obtain any particular degree of roughness on a surface. This section also points out that the standard is not concerned with any of the many other surface qualities, such as luster, appearance, color, corrosion resistance, wear resistance, hardness, etc. The second section defines some of the pertinent terms used in connection with surface roughness and the third defines the terms which are being standardized.

The fourth section provides for the evaluation of surfaces by:

(*a*) Comparison with specified reference surfaces or observational standards
(*b*) Direct instrument measurements

It also points out that the comparison referred to in (*a*) may be either by sight, feel, or instrument and that care must be exercised in making comparisons between pieces of different material, different shape, or made by different operations, since errors can easily arise from such causes.

The fifth section gives tables of the recommended values of roughness height and waviness height and provides for tolerances on these values by stating that the use of one number shall specify only the maximum permissible values of roughness or waviness. If it is desired to control either to a given range, two values must be specified indicating the maximum and minimum permissible amounts.

E. R. Boynton, *Marine and Aeronautics Engineering Division, General Electric Company, is secretary of the Sectional Committee on Standardization of Classification and Designation of Surface Qualities, B46.*

The last two sections describe and illustrate the surface symbol and the lay symbols and give an example of the use of the surface symbol. The surface symbol, shown in Fig. 1, is built around the check mark, √, which has been used by designers for many years to indicate that a surface is to be "finished." The complete surface symbol, shown in Fig. 1, makes provision for specifying all of the following four quantities:

1. The height of the allowable roughness
2. The height of the allowable waviness
3. Direction of the lay
4. Roughness width value

The last quantity defines the dividing line bteween what is to be considered as roughness and what is to be considered waviness. This means that the designer may specify what width of irregularities he wishes to have classed as roughness and what as waviness. If no value is specified for the dividing line between roughness and waviness it is to be considered that the irregularities due to tool feed and all finer irregularities shall be classed as roughness and that irregularities whose spacing is greater than the tool feed shall be classed as waviness.

It is very probable that in a large majority of instances, designers will not wish to specify all of the above quantities. Very frequently only the roughness will be specified, and in that case the check mark, √, and roughness value are the only portions of the symbol that need be shown for this purpose. This simplifies the amount of work on drawings requiring many surfaces to be finished and is the answer to the objection of some that the surface symbol is too complicated. On the other hand, there may be some who for reasons of uniformity desire to use the complete symbol even if only the roughness is specified and in this case the other spaces are simply left blank. The use of the surface symbol to specify roughness only is illustrated in Fig. 2 on the left and one way in which the same surface might have been specified by previous notation is shown on the right. Whereas

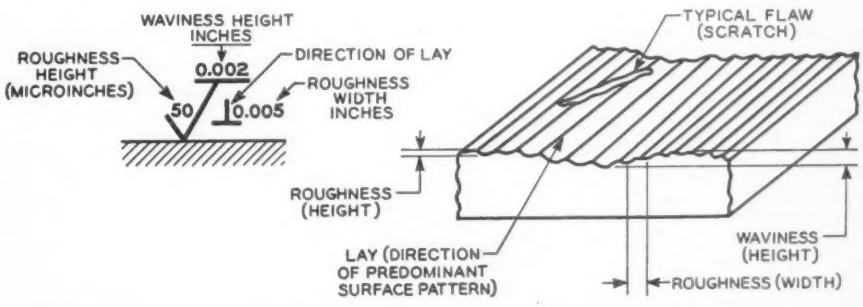


Fig. 1. The symbol for specifying the four quantities of surface roughness is illustrated at the left above. By means of this symbol, the allowable roughness height, waviness height, direction of lay, and roughness width can be graphically specified.

"rough machine" may have a rather widely varying meaning to different persons, 250 specifies a surface whose average deviation from the mean surface is not greater than 250 microinches or 0.00025 in. This symbol then means the same amount of roughness to everyone familiar with the notation.

This standard does not cover the entire field of surface qualities by any means. In fact, it deals with only a rather small portion of this subject—the one, however, which was felt to be of the greatest importance, namely, the standardization of means for specifying surface roughness, surface waviness, and lay (the visible pattern on a surface). Work is currently proceeding in a separate subcommittee on a standard to cover specimen blocks. This may be issued as a separate standard or as Part 2 of the present standard. Here again questions of what size and shape of block to standardize, what material to use, and numerous other points must be thoroughly considered before a satisfactory final decision can be made.

Many Problems Defined, Not Answered, in Standard

It would perhaps be well at this point to remind ourselves that the whole art (or science) of measuring and of describing the qualities of machined surfaces is young compared to the art of machining and the art of measuring in general. Some of the first successful attempts to measure the heights of surface irregularities on smooth surfaces were made in the early 1930's and attempts to standardize the surface finishes produced in the shop with the use of specimen blocks were first made around 1930. This means that many of the questions pertaining to the specification of surface roughness, such as whether to use the maximum peak-to-valley height of roughness, the average peak-to-valley height, or an average deviation from the mean surface (here again, either arithmetic or root mean square average) have not been settled by the final judge—the majority will of industry—and so these questions are left open in the standard with the various alternatives merely defined.

It was also decided that such questions as "how good a surface is needed for a journal bearing?" and "what is the surface roughness obtained by grinding, turning, planing,

Fig. 2. The standard (left) and an older method of specifying a machined surface.

etc?" did not fall within the scope of this standard. Other points, such as the wavelength that should be established as the dividing line between roughness and waviness, were not settled specifically because satisfactory unanimity could not be achieved. These and many other questions were debated at length and many controversies had to be settled. The result is a standard which is in many respects a compromise, but which has been tried in the heat of discussions representing many differing points of view.

The British have also been active in this field and the writer understands that they now have a national standard nearly ready for adoption. The details of this standard differ markedly from the American Standard but the broad objectives are the same, and many of the same problems are dealt with in it. The British Standard is based more largely on inspection by measuring instruments, whereas the American Standard gives equal recognition to inspection by comparison with standard reference surfaces and to inspection by measuring instruments. It is pertinent that there is in existence a subcommittee of the American sectional committee (B46) for the standardization of measuring instruments.

Change to Standard Procedure Would Help Reduce Costs

Regardless of the amount of work which may be put into the preparation of a standard, and regardless of the degree of excellence which it may attain, the benefit that can be derived from it can only be in proportion to the amount of use to which the standard is put. Hence, it is of the utmost importance that it be widely circulated and that the procedures for specifying surfaces on drawings be modified where necessary to bring them into conformity with the American Standard. It is unfortunate that this could not have been accomplished before the last several years because if it had been, many of the problems resulting from the large amount of subcontracting during the war would have been simplified. However, the standardization of the means for specifying surfaces can be a tool in helping to reduce future costs in peacetime industry.

Many groups have already set up standards of their own, some of which are more elaborate and more specific concerning details. It is expected that these standards will be continued and not replaced bodily by the national standard but rather that the relevant portions will be modified so as to carry out the spirit of the national standard. It is natural that many of these individual standards will be more detailed and specific than the national standard and will definitely specify such things as which measure of roughness height is to be used and how much of the symbol is required. This will inevitably mean some differences in usage, but these differences will be less acute than those existing now. At the present stage of development of this art, some flexibility is to be desired so that the natural advantages and disadvantages of competing forms have an opportunity to make themselves felt.

Real Test of Standard Lies In Its Application

In opposition, of course, to the advantage of flexibility is the benefit to be derived from the complete uniformity of a highly definitive standard and it is some middle ground between these two extremes that is occupied by this new American Standard for Surface Roughness, Waviness, and Lay. Let's use it and put it to the real test so that its true strength and weakness may be assessed. The sooner this is done, the sooner we will begin to realize the benefits of standardization in the field of surface roughness, and the sooner this standard can be extended to cover those points which are as yet not standardized.

Copies of the American Standard for Surface Roughness, Waviness, and Lay, B46.1-1947, are available at 45 cents from the American Standards Association, 70 East 45th Street, New York 17, N. Y.

One Company's Analysis Of *Why* and *How* to Use the Surface Roughness Standard

By James W. Owens

Technical Assistant to the General Manager, Beloit Works, Fairbanks, Morse & Co

THE attention of Fairbanks, Morse & Co was recently focused on the problem of surface finishes in connection with a revision of its standards for drafting room practice. In this connection, it was felt that our company should, if possible, adopt the American Standard for Surface Roughness, Waviness, and Lay, B46.1-1947, for the following reasons:

1. The finish symbols have a definite, measurable significance, which can be interpreted in the same manner by Engineering, Production Methods, Shop, and Inspection personnel.
2. Disputes between Shop and Inspection personnel over the degree of finish required for any part will be reduced to the minimum.
3. Rates established by the Time Study Department for any machining operation can be set in terms of definite end results insofar as finish is concerned, and the Production Methods Department can be assured that the same standards of finish will be consistently maintained.
4. Since drawings will specify only the *degree* of finish required and not the *method* of machining, the Production Methods Department will have complete freedom in the selection of tools, and thus be able to use the most economical or the most available method of performing any operation (see Fig. 1).
5. The telephone can be used to settle questions arising between the shop and other departments, since all departments will have identical standards at hand for reference.
6. The American Standard has been, or is likely to be, adopted by numerous departments of the government and throughout industry generally.

During the investigation into the adoption of the surface roughness standard, the selection of a set of surface finish comparison standards was considered, and a brief descriptive term, "finish comparator," was coined.

It was found that at least four sets of finish comparators (Fig. 2, page 12) are commercially available for evaluating the surface roughness of actual machined surfaces in terms of the American Standard. Pending the issuance of an ASA set of finish comparators, Fairbanks, Morse & Co tentatively selected set No. 1.[1] This set is shown in Fig. 3 (page 12) and has the following characteristics:

1. The samples are *actual* machined specimens and are therefore true representations of actual machine finishes.
2. The specimens will not corrode, as they are stainless steel.
3. The samples illustrate finishes obtained with the types of machine tools used in our plants, and in general reflect consideration of the problem from the more practical angle of machine shop operations.
4. The specimens cannot be removed from their case, and the case containing the complete set of standards is of such a size that it can be placed immediately adjacent to the work in the machine. This feature is very important to avoid temporary misplacement or loss of the specimens.
5. The set of standards is being used by at least 400 industrial concerns and

[1] Additional information concerning the comparators selected can be obtained from the author.

Average Roughness (Microinches)	Typical Methods of Producing (There are additional methods not listed here)
4	Ground, lapped, honed, microhoned, superfinished, etc.
8	Ground, lapped, honed, microhoned, superfinished, molded, drawn, etc.
16	Ground, lapped, honed, reamed, scraped, superfinished, bored, burnished, planished, milled, molded, precision-cast, cold-pressed, drawn, extruded, etc.
32	Ground, broached, reamed, scraped, turned, bored, burnished, milled, planished, molded, precision-cast, cold-pressed, drawn, extruded, etc.
63	Ground, broached, rolled, shaped, turned, bored, milled, abrasive cutoff, reamed, molded, precision-cast, extruded, drawn, etc.
125	Ground, broached, rolled, reamed, shaped, turned, bored, milled, drilled, spot-faced, counterbored, filed, punched, abrasive cutoff, molded, precision-cast, extruded, forged, etc.
250	Ground, rolled, shaped, turned, bored, milled, drilled, spot-faced, counterbored, filed, punched, sand-cast, forged, precision-cast, etc.
500	Ground, gas-cut, chipped, shaped, turned, bored, milled, sawed, filed, punched, sand-cast, forged, etc.
1000	Ground, gas-cut, chipped, shaped, turned, bored, milled, sawed, sheared, nibbled, welded, punched, sand-cast, forged, etc.
2000	Gas-cut, chipped, shaped, turned, milled, sawed, sheared, nibbled, welded, parting cut, sand-cast, etc.

Fig. 1. Typical Methods of Producing Various Degrees of Surface Roughness

Set No.	Method of Manufacturing Specimens	ROUGHNESS VALUE (MICROINCHES) AND TYPE OF MACHINED SURFACE																																														
		2	4		5		8		10			16		20	32			40			63					100				125					250						500					1000		2000	
		Polish	Grind	Polish	Polish	Lap	Polish	Lap	Lap	Hone	Grind	Grind	Bl. Grind	Grind	Grind	Bl. Grind	Mill	Grind	Turn	Mill	Grind	Turn	Profile	Shape	Mill	Grind	Turn	Mill	End Mill	Grind	Turn	Profile	Shape	Mill	Grind	Turn	Profile	Shape	Mill	End Mill	Grind	Turn	Profile	Shape	Mill	Shape	Mill	Shape	Mill
1	Actual Machined Stainless Steel Specimens	X		X			X					X	X		X	X					X	X		X						X	X		X	X	X	X		X			X	X		X					
2	Electro Deposited Reproductions	X		X			X					X			X	X					X			X	X					X			X	X		X		X	X			X		X	X				
3	Electro Deposited Reproductions		X					X				X			X		X				X		X	X	X					X		X	X	X	X		X	X	X		X		X	X	X	X	X	X	X
4	Plastic Reproductions				X	X			X	X	X			X				X	X	X						X	X	X	X						X	X			X	X		X			X				

Fig. 2. Comparison of Four Sets of Commercially Available "Finish Comparators"

government establishments throughout the United States.

Our experience has indicated, however, that certain modifications in the finish comparators selected would be of advantage for our use and possibly for general use. For example, the two smoothest finishes (two and four microinches) should be eliminated for the following reasons:

1. Our plant does not make extensive use of these finishes.
2. We feel that a comparison standard of the visual and factual type is not satisfactory for the evaluation of these extremely fine finishes.
3. We desire to reduce the number of finishes to a practical minimum.

For our purposes, samples should be added to illustrate "milled" and "end milled" finishes for the 250 microinch roughness as these are common finishes in our plants. In addition, samples for 1000 and 2000 microinch roughness should be added for intermediate rough machine cuts; also samples to illustrate "flame cut" surfaces, "shot blasted" surfaces, and possibly "shot blasted flame cut" surfaces. We are considering the use of a supplementary case for those specimens which cannot be mounted in the first case.

Before any steps were taken to adopt officially the American Standard on Surface Roughness and to purchase a large number of comparators, it was decided that an investigation should be made to determine whether the ASA proposes to issue a set of finish comparators and, if so, how soon the set would be available.

It was also decided that, if the standard is put into effect, comparators will not at first be distributed to the various shops, but distribution will be restricted to the Engineering, Inspection, Production Methods, and Tool Departments. Furthermore, shop supervisors and mechanics will consult with the inspector or inspectors assigned to their respective shops, using the Inspection Department's finish comparators for interpretation of the finishes specified on the drawings and on time study operation sheets for intermediate rough machine cuts.

There was general agreement that before it would be practical to introduce finish comparators in the plant, an appreciable amount of time would have to be given to an educational program by each of the departments involved. It was decided, also, that as a first step in the introduction of the ASA finish standards the ASA symbols would be restricted to the designations of "roughness" only. The additional information covering "waviness" and "lay," as defined in the American Standard B46.1-1947, may be added at a later date if required.

The introduction of the American Standard and the use of finish comparators would not make it necessary to revise existing drawings which

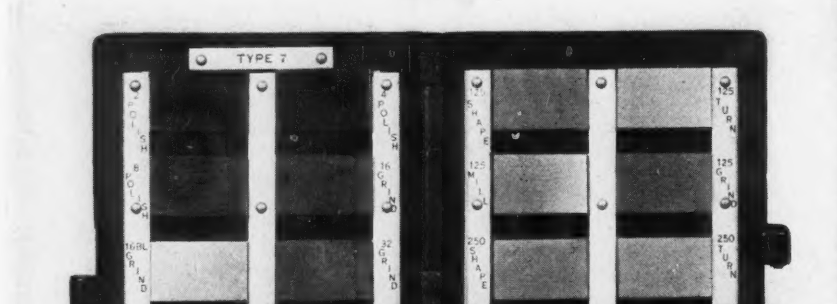


Fig. 3. Set of "Finish Comparators" Listed in Fig. 2. (Set No. 1)

designate finishes by means of the symbols f1, f2, f3, etc. This problem can be solved by the preparation of a table of surface roughness equivalents which would give roughness values in microinches corresponding to the company's finish designations referred to.

As a result of its investigations, Fairbanks, Morse & Co has concluded that the profilometer is useful as an instrument for settling "referee cases" and for checking extremely fine finishes, rather than as an instrument for routine checking of machine finishes. Accordingly, it is our conclusion that only a very limited number of profilometers would be required by our company in carrying out such a program.

NOTE: Subsequent to the preparation of this article, the writer's attention was called to a joint development by the General Motors and Chrysler Corporations of a master set of surface finish comparators wherein the specimens are produced by ruling a geometric pattern on flat polished plates. The ruling is done on a gold-plated surface by a diamond tool of known angle, producing an accuracy of pitch ± 2 to 4 percent. From this master set, reproductions will be obtained electrolytically for use in routine inspection. This development naturally calls for a further study of the problem by our company.

New Developments in the Nation's Building Program

• • A Basic Building Code, prepared by the Building Officials Conference of America, Inc, was approved on September 21 by the Board of Consultants and Review. It is now to be distributed to industry groups for review and recommendations. The industry recommendations, where acceptable to the Board of Consultants, will be incorporated in a revised draft which will be distributed to municipalities in the spring.

According to the Building Officials Foundation, the Basic Building Code is a performance code prescribing standards of construction to meet the fundamental requirements of structures and buildings in terms of their intended use. These functional requirements, the Building Officials Foundation believes, remain constant and are determined by engineering principles and practices assuring structural integrity, adequate fire prevention and protection features, adequate sanitation standards, and other minimum requirements insuring public health, comfort, and safety.

• • The Uniform Building Code Association, national affiliate of the Pacific Coast Building Officials Conference, announces release of a new Uniform Building Code for Small Jurisdictions. This is an abbreviated form of the basic document, the Uniform Building Code, and is designed for use by communities which have populations of under 10,000. It is intended to apply only to buildings not more than 7,500 square feet in ground floor area. For all other structures, the small code requires compliance with the latest edition of the parent Uniform Building Code.

The latter document is the official ordinance of 460 cities and counties. It is kept up to date by constant revision. Some 300 suggested revisions to the 1946 edition of the code have already been published for study by members of the organization and have been the subject of study by the Code Changes Committee for a year or more. At the 25th Annual Meeting of the Association in October, approximately 100 of the 300 revisions were approved by members representing cities operating under the Uniform Building Code. The balance were either approved tentatively (which means another year of study), left for further study, or disapproved.

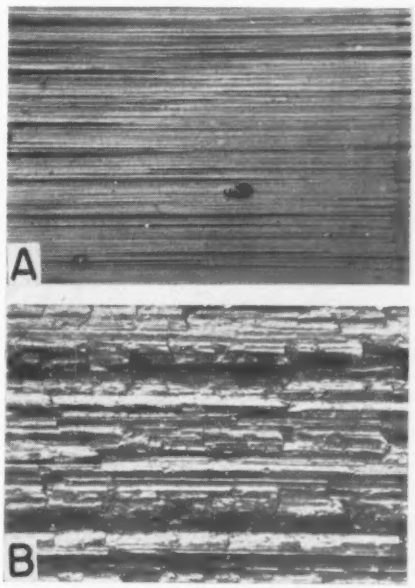
• • A uniform basis for measuring the adequacy of building materials and home construction methods is the objective of a new publication issued by the Technical Office of the Housing and Home Finance Agency. Entitled "Performance Standards," the pamphlet proposes performance standards for structural elements of the house such as floors, walls, partitions, ceilings, and roofs, as well as data on insulation requirements.

The publication emphasizes the importance of developing performance standards for materials and structural systems, rather than stating requirements in terms of types, grades, dimensions, spacings, mixes, or similar qualities which are often specified in building codes. This approach, the Agency believes, provides more flexibility in the use of new materials and building techniques and is a needed step in the program of modernizing building codes.

NBS Method Uses Plastic Replicas of Surface

In connection with the sectional committee work on surface quality, it may be of interest to note that the National Bureau of Standards recently announced a method of evaluating surface finish by means of a nearly transparent plastic replica of a surface. The method consists essentially in passing a narrow beam of light transversely through the moving replica onto a photoelectric cell. The fluctuations in the light intensity are recorded by an electronic voltmeter. Results for different surface finishes are correlated with profile measurements of the surface determined with the microscope.

The advantages of this method, the Bureau announces, are (1) maintenance of a permanent record of a surface finish; (2) rapid evaluation of a relatively large area of surface in one determination; (3) simplicity of operation; (4) prevention of damage to surface, even for soft materials such as lead or tin-base alloys; and (5) availability of the method, since the replica may be prepared in one locality and transported to the person doing the analyzing.



Micrographs obtained from plastic replicas. (A—finely ground surface; B —coarse shapered surface.) Both were photographed with transmitted light and are magnified 100 times.

NOTE: From time to time, as the experiences of companies with other methods of evaluating surface finish come to our attention, INDUSTRIAL STANDARDIZATION will extend this discussion to include these methods and recommendations.

What's Happening on Clothing Sizes

By Mansfield Lonie

National Bureau of Standards' work on sizes of ready-to-wear clothing uses system of "grading" patterns as common factor; standards for children's clothing already completed

A PROGRAM to standardize the sizing of ready-to-wear apparel is now going forward at the National Bureau of Standards. It started nearly three years ago at the request of nationwide distributors who desired to reach some practical solution to the problem of conflicting ready-to-wear size data.

After some study of the conflicting size data, it became clear that the problem could not be solved easily, for the conflicts were due to varying sizing practices of the different segments of the apparel industry. In the children's part of the industry, for example, dresses were sized one way, play clothes a different way, and knitted underwear a third way. To reconcile these differences in an industry composed of thousands of relatively small firms, each specializing in certain types of apparel, special handling and new techniques were required. To undertake this task on a nationwide basis, the distributors asked for the cooperation of the Commodity Standards Division of the National Bureau of Standards.

The main problem was to discover some *common factor*, or *principle*, underlying the sizing practices of the various segments of the industry, which would provide a basis for standardization. Eventually both were found, and are discussed subsequently.

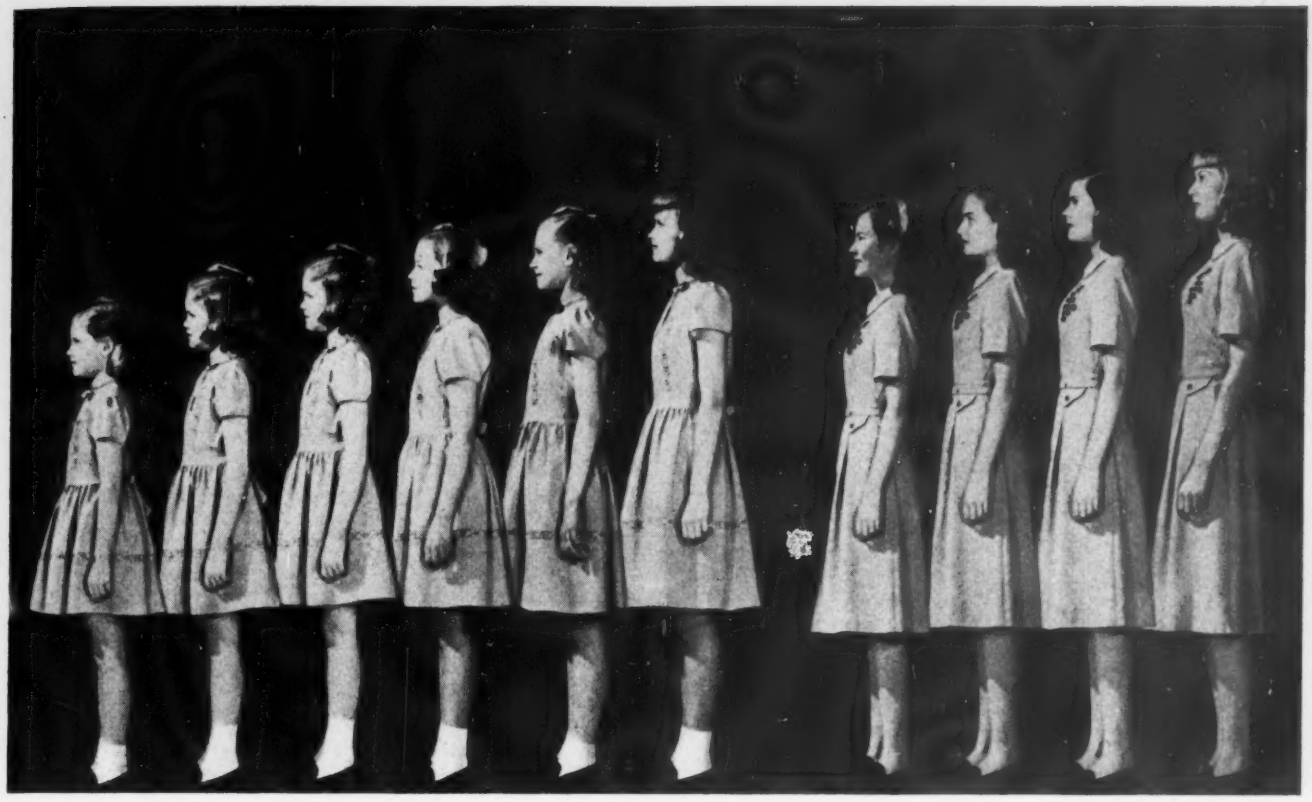
The Common Factor

The common factor was the industry system of grading patterns. The word "grading" may require explanation, as it is a technical term. To put it simply, "grading" is the process whereby the various pattern pieces of a garment for one size—e.g., size 3—are enlarged or diminished to make the other sizes, 2, 4, 5, 6, etc. Grading therefore is the unsung technological process of the apparel industry. It is without question the elemental and necessary basis for standardization.

Grading has been taught (in schools and out) since the beginning

***Mansfield Lonie** is a member of the Commodity Standards Division of the National Bureau of Standards. For the last seven years he has been working on the standardization of sizes for children's and adults' garments based on body measurements and is recognized as an authority on this subject.*

EDITOR'S NOTE: The National Bureau of Standards is one of the organizations which is cooperating on the Sectional Committee on Standards for Women's Dress Sizes, organized recently by the American Standards Association at the request of the National Retail Dry Goods Association. The NRDGA is serving as sponsor for this project. L. R. Gilbert of the Commodity Standards Division of the Bureau is the NBS representative on this committee.



Sears, Roebuck & Co

This chart reflects the new sizing in girls' wear as developed by the National Bureau of Standards and the Mail Order Association of America. These sizes are designed to fit the body, not the birthday, Sears, Roebuck explains: For example, if a child is from 29½ to 31 inches tall, and if her chest measures 20 inches, while her weight is from 22½ to 24½ pounds, then, according to this table, you would order size 1 for a satisfactory fit.

of the apparel industry. It is being taught with more precision today. In New York City, for example, there are a number of well-known schools, some of them part of the City's educational system, teaching the art of grading. The word "art" is used because the success of American style leadership depends, in great measure, upon the skill with which a given style, fitted on a beautiful model, is eventually transmitted by grading methods into a good, well-fitting style for the many.

The Principle of Sizing

A good principle of sizing, together with the necessary statistical analyses to convert the principle into practice, was found in the excellent study of children's body measurements issued in 1941 by the U.S. Department of Agriculture.[1]

The principle of sizing referred to is the following—select a vertical measurement (stature); with it, combine a weight or horizontal measurement (hip girth). When used together, they constitute the best pair of measurements for developing a general sizing system that can be applied to all type of children's apparel.

By studying the grading systems of the industry, and by using sound sizing principles, it has been possible to develop three recommended commercial standards for the sizing of children's apparel. These are:

(1) TS-4000[2], for infants' to children's, sizes 3 mos to 6X
(2) TS-4093, for girls', sizes 7 to 14
(3) TS-4400, for boys', sizes 2 to 20

The sizing system embodied in these recommendations is gradually coming to be known as the "height-weight" system of sizing, although, frequently, another girth measurement is added. It may be either a chest, waist, or vertical trunk measurement, depending upon the type of garment. The recommendations are drawn up so that each of the various sizes is defined in terms of the body measurement of a "typical" child. Thus, apparel "sizes" can now have uniform significance—whether to manufacturers, distributors, or consumers. Also, all manufacturers —whether they manufacture underwear, outerwear, or garments made of woven goods or knit goods—can use the same size designations, and, it is hoped, will label their garments to show conformance.

Such a program does not disturb the basic prerogatives of the producer—to fit and style garments according to his own ideas. The producer only agrees to use boys, girls, or women with the same body measurements as those used by his competitors in designating, or fitting, given sizes.

In order to show how "size" is defined, the full scale of height, weight,

[1] Miscellaneous Publication No. 366, "Body Measurements of American Boys and Girls for Garment and Pattern Construction" by Ruth O'Brien, Bureau of Home Economics. Available from Superintendent of Documents for 60 cents per copy.

[2] The letters "TS", followed by a serial number, are used to identify mimeographed material of the Division of Trade Standards, which, effective July 1, 1947, was integrated into the Commodity Standards Division.

chest, and waist measurements of the boys' recommendation, TS-4400, is given in the table below.

Size "10," for example, represents a boy 54 inches tall, weighing 71 pounds, with chest and waist measurements approximately 28 and 24½ inches, respectively. The weight intervals between sizes vary from 4 to 8 pounds; the girth intervals are more regular—one-half inch in waist measurement and three-fourths to one inch in chest measurement. The girth intervals are close to the prevailing intervals used by industry, and correlate with decreasing height changes —from three inches to one inch.

Very small boys seem to spend all of their growing energy growing taller. For these sizes it takes a height difference of 3 inches before the chest and waist measurements show the necessary size-to-size development. When the boy gets up to about 48 inches, however, the chest and waist measurements begin to increase at a more rapid rate, and, therefore, the height interval is dropped down to 2 inches change from one size to the next. After 58 inches, this process is even more important and the height "jumps" are cut down to 1½ and, finally, to 1 inch.

Height, however, is the most important measurement in determining size because changes in all other body measurements were found to correlate closely with height changes, whether for "slim" boys, "regulars," or "stouts." Also, it is the largest measurement, and the one parents notice most.

For the manufacturer of boys' apparel, the recommended system provides a "size dictionary" which tells in great detail the body changes occuring as the "typical" boy grows up. When grading patterns for clothes, the manufacturer will need most of the measurements provided by the dictionary, while the parent will need only two or three—height, weight, chest, or waist girth, etc—which can be provided right on the garment. The same considerations, of course, apply to the girls' and children's recommendations.

Despite the broad application of these recommendations, considerable progress has been made. One of the largest trade associations, representing producers of children's apparel, has a small committee at work in order to determine just how to align its sizing practices with the children's recommendation. Another association of manufacturers with nationwide coverage is recommending the adoption of all three sizing proposals to its membership.

Distributors have backed them strongly—not only the mail order and independent retail groups, but the limited price and other chain store groups as well. The number of acceptances continue to grow, and is expected to increase sharply when whole industry groups, like those above, endorse them.

Endorsements from technical trade schools, and from guilds of pattern makers, are particularly encouraging, and indicate a probability that this system will gradually become the standard in the education curriculum of the technical schools. Acceptances from home economics groups in colleges throughout the country also indicate that they appreciate the value of having the apparel sizing system delineated in practical terms for the consumer. Hundreds of acceptances are now on hand for each size grouping.

Plans for the Future

Considered with reference to the entire plan, as visualized by the proponent group, the program is just effectively under way. Although rather complete plans have been made for the other classifications—teenage boys' and girls' and women's —considerable research will have to be done before they are completed. The women's classifications will be more difficult than the children's to develop because basic concepts in the system of sizing are now being changed, with new body types, both in terms of variations in girth measurements, and in height measurements, being introduced. The changes, however, are highly desirable, and will eventually represent a distinct improvement in the system of sizing women's apparel.

Model Forms

As acceptances for each of the body measurement sizing recommendations indicate that the system as proposed is generally satisfactory to the trade, corresponding sizing recommendations for model forms, based on the body measurement projects, are being developed.

The second of this model form series, for girls' sizes 7 to 14, will soon be sent out to the trade for comment.

Other Countries

Requests for height-weight sizing recommendations have been received from many parts of the British Empire—Canada, Australia, New Zealand, South Africa, and the British Isles—indicating a very active interest in apparel size standardization.

Representatives of the Dutch apparel industry are exploring the possibilities of using the same recommendations in Holland, but no definite decisions have been made to date so far as we are informed.

As is our custom, we have also kept the British Standards Institution informed of our work, though no common understandings have yet been reached concerning a broader use of these recommendations on the international level.

Conclusion

"Height-weight sizing," the popular name of this system of sizing children's apparel, seems here to stay. It is too substantial and practical to languish or die. Interest in the system is higher today than ever before. In recent months two nationwide trade associations have taken industrywide action looking toward acceptance of one or more of the recommendations.

Those who have used the system express satisfaction with it. We look forward to periods of accelerated growth (in terms of acceptances) with eventual promulgation the goal. Steady progress is being made toward this achievement.

Body Measurement Size Table for Boys' Classification

Size	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Height (in.)	34	37	40	43	46	48	50	52	54	56	58	59½	61	62½	64	65	66	67	68
Weight (lb)	28½	32½	37	42	48	53	58	64	71	78	85	91	98	105	113	119	124	130	136
Chest (in.)	21	22	23	24	25	25¾	26½	27¼	28	28¾	29½	30½	31½	32¼	33	33¾	34½	35¼	36
Waist (in.)	20½	21	21½	22	22½	23	23½	24	24½	25	25½	26	26½	27	27½	28	28½	29	29½

First Safety Standard for Conveyors

Conveying equipment, speeding man's handling of materials, has eliminated certain hazards while creating others; new American Standard safety code outlines safe practices in design, manufacture, and use of conveyors

By H. C. Keller

SINCE the day our poor old ancestor, the cave man, discovered that a round branch of a tree under a stone would enable him to move that boulder without calling out the rest of the tribe, on through the invention of the screw conveyor, past the building of the Pyramids, to the present time, man has become more and more dependent on machinery to do the things which cannot be accomplished by mere muscles.

Archimedes, who made one of the first screw conveyors, could not have imagined that conveyors would someday become a necessary part of all manufacturing and of many commercial businesses. The conveyor industry branch of the material-handling equipment industry is today a 125-million dollar business.

H. C. Keller, *engineering manager of the Lamson Corporation, is a member-at-large on the Sectional Committee on the Safety Code for Conveyors and Conveying Equipment, B20.*

Conveyors are no longer considered a luxury—they are a necessity in our economic life. An example is in the mining of coal. In 1946, production averaged slightly more than 6 tons per man-day as compared with 2½ tons for a longer day in 1890 when all coal was hand mined. In 1925, about 1.2 percent of the soft coal was mechanically loaded by conveyors, while in 1945, 56.0 percent was untouched by human hands.

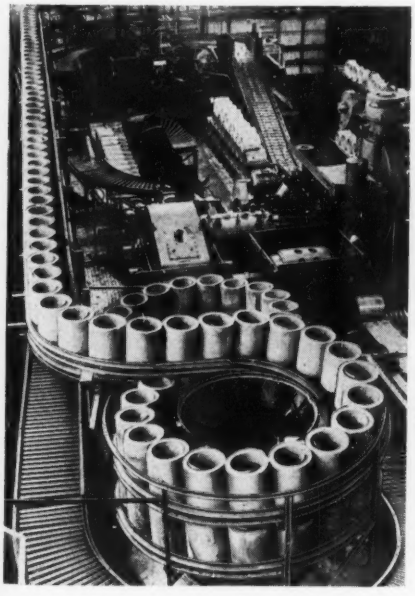
A conveyor recently invented for the fish industry will clean ten fish per minute, both inside and out, and it will make no fuss if they are of different sizes. Other conveyors filet the fish, wash, cool, and deliver it past the packers to the shipping dock.

Still another specialized unit produces from 700 to 1400 dozen popsicles per hour.

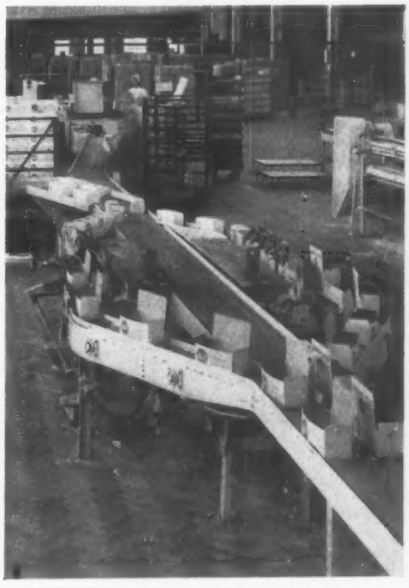
Conveyors perform under conditions which the human body could not endure. An ice cream freezing conveyor takes packaged ice cream through a —50 degree temperature for one hour while, in contrast, silicone-coated belts handle food through a dehydrating process at +525 degrees.

Rear axles for automobiles present a classic example of the economic value of conveyors. In the "before" picture, 350 workmen labored for 16 hours to produce 1700 axles. "After" conveyors, 109 men built 6700 axles in 8 hours.

Mechanizing for the sake of safety is of prime importance. One report of the National Safety Council points out that of 634 disabling material-handling accidents, 147 were from lifting with a bent back. Other injuries were traceable to insecure footing, improper placing of hands, lack of protective equipment, and so on. One glaring fact emerges—unnecessary handling of materials means unnecessary exposure to accidents.



Whether they transport loads weighing many hundreds of pounds . . .



. . . or loads weighing ounces only, conveyors ease distribution of goods.

The use of mechanical conveyors has reduced the accident hazards resulting from the manual handling of materials. At the same time, however, mechanical conveyors have introduced new hazards, which in 1922 prompted the American Standards Association Safety Code Correlating Committee to recommend the development of a safety code.

Joint sponsorship for this project was offered to the National Bureau of Casualty and Surety Underwriters and the American Society of Mechanical Engineers in May of 1922, was promptly accepted, and a nationally representative committee was organized to develop the standard. An excellent beginning was made but then little progress was shown due to the economic depression and the death of C. H. Newman, chairman of the Subcommittee on Plan and Scope. It was not until April of 1944 that a draft of the proposed code was distributed to industry for criticism and comments. The comments thus received were sent to the sectional committee in August 1944 for further study. In June 1946 an editing committee met to review the April 1944 draft with respect to the comments received. The result is the American Standard Safety Code for Conveyors, Cableways, and Related Equipment, B20.1-1947.

Safety to Worker Prime Consideration of Standard

The code stresses the fact that it is intended as a guide for safe construction, installation, operation, and maintenance of conveyors. It also stresses good housekeeping as of prime importance.

The committee realized the necessity of providing safety to the worker and the conveyor, but at the same time appreciated that any guards or other devices must not interfere with the practical application of the conveyor. Obviously, safety for the worker or operator was given first consideration and wherever possible all other requirements were given second consideration. This is reflected in such parts of the code as the rules and recommendations to protect against overspeeding and overloading.

Reference is made to other established American Standards such as the Safety Code for Elevators, Dumbwaiters, and Escalators, the Safety Code for Cranes, Derricks, and Hoists, the Safety Code for Floor and Wall Openings, the Safety Color Code for Marking Physical Hazards, and the National Electrical Code. All applicable safety regulations or devices already in use are considered part of the new code.

Complete definitions of all the types of conveying machinery covered by the code are given. These include cableways, tramways, apron and belt conveyors, blower conveyor systems, bucket conveyors, chain conveyors, overhead trolleys, and pneumatic tubes, among others.

General safety regulations applying to all types of conveyors include such essentials as provisions for the safe working load; minimum diameters for pulleys, sheaves, and drums; arrangement of pulleys to prevent injury to operators; guards to protect maintenance personnel from contact with moving parts; and automatic interlocking devices to stop a conveyor when the conveyor to which it feeds is stopped.

Requirements for Various Types of Conveyors Covered in Part II

Part II of the code provides specific safety regulations applying to the individual classes of conveying equipment. These include such special provisions as requirements for operating ropes for the aerial cableway; requirements for belt conveyors to prevent an operator from slipping and falling when traveling rippers are used to discharge material from a moving belt; provisions to make it impossible for a man to open the doors to pressure vessels of blower conveyor systems while there is a positive internal pressure.

In providing safety requirements for the design features of conveying machinery, the code specifies that all moving parts, mechanisms, chains, gears, etc, shall be guarded where they constitute a hazard to personnel. Safe practices for the construction and installation of conveyors include provisions for adequate clearance and aisles, platforms and crossovers so that workmen will not step on the conveyor, and overhead guards.

Considerable time was given to operating rules, as it was the committee's conviction that too much emphasis could not be placed on this phase of employee training. The careful instruction of the operator, in the function of the machine and the location of all stopping devices, is necessary to safe operation. Some of the fundamental rules include a provision that all starting and stopping devices should be clearly marked; that loading and unloading points must be kept clear of obstructions; and that no one except an authorized maintenance man shall lubricate or service a conveyor.

Most conveyors are installed in a fixed position and therefore can be more readily equipped with guards to prevent injury to personnel working or passing in the vicinity. The code covers all practical guards of this nature and also provides for protection to the maintenance man when working on the conveyor. The code provides simple but effective means to prevent a powered conveyor from being operated by anyone other than the maintenance man while he is working on the conveyor.

In some types of conveyors there are moving cars or buckets, as in the aerial cableway. In these cases it is more difficult to provide practical and adequate safety devices and it is for this reason that the code devotes more space to these types of conveyors than any other single type. The section dealing with aerial cableway, in addition to emphasizing construction requirements, gives specific instructions for safe operation and maintenance, and inspection rules which insure thorough coverage to protect against defective equipment.

It is the committee's opinion that no requirement in the code will work a hardship on the manufacturer or the user. Only full cooperation between manufacturer and user will assure a workable code that provides maximum protection to all personnel associated with the operation of conveyors.

Conveyors, being a necessity in today's industrial and commercial life, are "here to stay." The need of a uniform set of regulations in the manufacture and use of conveyors is recognized and the new safety code will fill that need.

The American Standard Safety Code for Conveyors, Cableways, and Related Equipment, B20.1-1947, prepared by a sectional committee under the sponsorship of the National Bureau of Casualty and Surety Underwriters and the American Society of Mechanical Engineers, is available at 90 cents per copy.

ASSE Achieves Independent Status as a National Society

THE American Society of Safety Engineers, formerly the Engineering Section of the National Safety Council, became an independent society affiliated with the National Safety Council on October 21.

This action is a tremendous step toward granting "professional standing" for safety engineers, who have long desired stature comparable to that of the mechanical or civil engineers or other recognized professional people. The Executive Board of the National Safety Council gave its support to this change in a resolution which stated that "the Executive Board, NSC, recognizing the need for strengthening the professional standards of safety engineering, believe this can best be accomplished through the establishment of an autonomous professional safety engineering society working in close harmony with the National Safety Council."

The following officers have been elected to direct the national organization:

John S. Shaw, *President*
Robert Ferguson and Edgar C. McFadden, *Vice-Presidents*
A. D. Cadell, *Secretary*
Ernest S. Beaumont, *Treasurer*

The Metropolitan Chapter in New York, one of the principal groups which was instrumental in urging independence for the ASSE, has pledged its full support to the national body. W. F. Brown, general chairman of the Metropolitan Chapter, views this step as of great benefit to every member. "Through the committees of the national society, such as the committees on research, publication, codes, cooperation with engineering colleges, and so forth, working in close cooperation with similar committees of our local chapter, we may expect to move forward to fresh achievements of a valuable nature."

The Society was originally organized as an autonomous body in 1911, and took an active part in building the safety code program operating under the procedure of ASA. It also served as sponsor for several safety code projects and continued this leadership after becoming affiliated with the National Safety Council. Since becoming an independent group again, the ASSE has accepted membership on the Safety Code Correlating Committee of ASA.

Obituaries

Clifford B. LePage

Clifford B. LePage, assistant secretary of the American Society of Mechanical Engineers since 1918, died suddenly while attending a subcommittee meeting of the ASA screw thread sectional committee, January 15. As secretary of the ASME standardization committee, Mr LePage was in charge of the ASME work on standards, much of which was done through sectional committees organized under the procedure of the ASA, for which the ASME was sponsor. He was also secretary of the ASME's standing committees on research, power test codes, and safety.

Mr LePage had been closely associated with the American Standards Association from the time of its organization as the American Engineering Standards Committee, having served as Acting Secretary of the Committee during the period of its organization, from 1918 through 1919. He had been an alternate member of the Standards Council since 1925. He was secretary of the sectional committees on plumbing, A40; gears, B6; and shafting, B17; and acting secretary of the sectional committees on pipe thread, B2, and allowances and tolerances for cylindrical parts and limit gages, B4.

He had been assistant director of the Secretariat for Prime Movers of the International Electrotechnical Commission for many years.

Ralph G. McCurdy

Announcement of Ralph G. McCurdy's death, as the result of a heart attack while pushing a stalled car, came as a great shock to all with whom he worked.

Mr McCurdy was a member of the ASA Standards Council, representing the Telephone Group. He had been with the Bell System for 32 years, and had served with the Bell Telephone Laboratories from the time that the department of development research of AT&T was transferred there. He served with the Bell Laboratories as noise engineer. In 1937 he became assistant director of transmission and development and in 1940 became transmission director of engineering.

During the war, Mr McCurdy's engineering skill was responsible for the development of component parts for such equipment as the magnetic airborne detector and sonar, the underwater equivalent of radar. Mr McCurdy also directed research leading to the development of synthetic crystals, a substitute for quartz used in certain aspects of the telephone system.

In the ASA, in addition to serving on the Standards Council, Mr McCurdy had been a member of sectional committees dealing with mercury arc rectifiers, C34; electric and magnetic magnitudes and units, C61; radio-electrical coordination, C63; and acoustical measurements and terminology, Z24. He was chairman of a special committee on sizes of American Standards and vendors' catalogs.

H. M. McCully

At the time of his death on November 29, 1947, Professor H. M. McCully was head of the Department of Engineering Drawing and Descriptive Geometry at Carnegie Institute of Technology. He had been associated with the Institute in various capacities since 1910. During this time he had also acted as consultant for several companies in computing scales and charts, in the design of experimental equipment for the hydrogenation process, and in engineering drafting projects.

His interest in promoting engineering education brought him into close contact with the ASA. As representative for the Society for the Promotion of Engineering Education, he served on the ASA's sectional committees on graphic presentation, Z15, graphical symbols and abbreviations for use on drawings, Z32; and had been both secretary and chairman of the sectional committee on drawings and drafting room practice, Z14.

ASA Standards Activities

American Standards Approved

Safety Code for the Use, Care, and Protection of Abrasive Wheels (Revision of B7-1943), B7.1-1947

Sponsors: Grinding Wheel Manufacturers Association; International Association of Industrial Accident Boards and Commissions

Specification for Varnished Cambric Insulated Cable (Replacement of C8.13-1942), C8.13-1948 (IPCEA S-2 1946)

Specifications for Weather Resistant (Weatherproof) Wire and Cable (URC Type) (Revision of C8.18-1942), C8.18-1948

Sponsor: Electrical Standards Committee

Safety Code for Power Presses and Foot and Hand Presses (Revision of B11-1937), B11.1-1948

Sponsor: National Safety Council

Approval Requirements for Dual Oven Type Combination Gas Ranges, Z21.37-1948

Sponsor: American Gas Association

Practice for Microfilms, Z38.7.8-1947

Dimensions of Inch-Size Photographic Papers, Z38.1.43-1947

Sponsor: Optical Society of America

Methods of Testing Sheet and Plate Materials Used in Electrical Insulation (Revision of ASTM D229-43; ASA C59.13-1944), ASTM D229-46; ASA C59.13-1948

Methods of Testing Laminated Tubes Used in Electrical Insulation (Revision of ASTM D348-42; ASA C59.14-1943), ASTM D348-46; ASA C59.14-1948

Methods of Testing Laminated Round Rods Used in Electrical Insulation (Revision of ASTM D349-42; ASA C59.15-1943), ASTM D349-46; ASA C59.15-1948

Carbon- and Alloy-Steel Nuts for High-Pressure and High-Temperature Service (Revision of ASTM A194-40; ASA G38.-1-1942), ASTM A194-46; ASA G38.1-1948

Specifications for Malleable Iron Castings (Revision of ASTM A47-33; ASA G48.1-1942) ASTM A47-47; ASA G48.1-1948

Specifications for Cupola Malleable Iron (Revision of A197-39; ASA G49.1-1942), ASTM A197-47; ASA G49.1-1948

Specifications for Lampblack (Revision of ASTM D209-46; ASA K26.1-1946), ASTM D209-47; ASA K26.1-1947

Specifications for Bone Black (Revision of ASTM D210-46; ASA K36.1-1946), ASTM D210-47; ASA K36.1-1947

Specifications for Chrome Yellow and Chrome Orange (Revision of ASTM D211-43; ASA K27.1-1943), ASTM D211-47; ASA K27.1-1947

Specifications for Reduced Chrome Green (Revision of ASTM D213-41; ASA K28.1-1944), ASTM D213-47; ASA K28.1-1947

Specifications for Iron Blue (Revision of ASTM D261-46; ASA K29.1-1946), ASTM D261-47; ASA K29.1-1947

Specifications for Reduced Para Red (Revision of ASTM D264-41; ASA K31-1941), ASTM D264-47; ASA K31-1947

Specifications for Zinc-Coated (Galvanized) Iron or Steel Sheets (Revision of ASTM A93-27; ASA G8b1-1931), ASTM A93-47; ASA G8.2-1947

Methods of Chemical Analysis of White Pigments (Revision of ASTM D34-39; ASA K15-1939), ASTM D34-47; ASA K15.1-1947

Specifications for C. P. Zinc Yellow (Zinc Chromate) (Revision of ASTM D478-41; ASA K50-1941), ASTM D478-47; ASA K50.1-1947

Sponsor: American Society for Testing Materials

Buzz-Track Test Film for 16-Millimeter Motion Picture Sound Reproducers, Z22.-57-1947

Sponsor: Society of Motion Picture Engineers

Standards Being Considered for Approval

Building Regulations for Reinforced Concrete (ACI 318-47) (Revision of A89.1-1946)

Standards Being Considered for Approval—Continued

Proprietary Sponsor: American Concrete Institute

Manual on Uniform Traffic Control Devices (Revision of D6-1935)

Sponsors: American Association of State Highway Officials; Institute of Traffic Engineers; National Conference on Street and Highway Safety

Distance Scales Marked in Meters for Focusing Camera Lenses (Revision of Z38.-4.13-1944)

Nomenclature Parts of a Photographic Objective Lens, Z38.4.19

Methods of Designating and Measuring Apertures and Related Quantities Pertaining to Photographic Lenses, Z38.4.20

Methods of Designating and Measuring Focal Lengths and Focal Distances of Photographic Lenses, Z38.4.21

Sponsor: Optical Society of America

Standards Submitted for Approval

Taps, Cut and Ground Thread (Revision of B5.4-1939)

Spindle Noses (Revision of B5.9-1936)

Sponsors: National Machine Tool Builders' Association: Society of Automotive Engineers; American Society of Mechanical Engineers; Metal Cutting Tool Institute

Soaps and Detergents—
- Chip Soap, ASTM D496-39
- Ordinary Bar Soap, ASTM D497-39
- Powdered Soap, ASTM D498-39
- White Floating Toilet Soap, ASTM D499-39
- Alkaline Soap Powder, ASTM D534-42
- Salt-Water Soap, ASTM D593-42
- Milled Toilet Soap, ASTM D455-39
- Liquid Toilet Soap, ASTM D799-45
- Built Soap, Powdered, ASTM D533-44
- Compound Chip Soap (With Rosin), ASTM D690-44
- Compound Powdered Soap (Granulated, with Rosin), ASTM D691-44
- Olive Oil Chip Soap (Type A, Pure; Type B, Blended), ASTM D630-42
- Palm Oil Chip Soap (Type A, Straight; Type B, Blended), ASTM D536-42
- Caustic Soda, ASTM D456-39
- Modified Soda (Sesquicarbonate Type), ASTM D457-39
- Soda Ash, ASTM D458-39
- Sodium Metasilicate, ASTM D537-41
- Sodium Sesquisilicate, ASTM D594-41
- Trisodium Phosphate, ASTM D538-44
- Tetrasodium Pyrophosphate (Anhydrous), ASTM D595-45
- Sampling and Chemical Analysis of Special Detergents, ASTM D501-46

Submitted by: American Society for Testing Materials

American Standards Withdrawn

Specification for 750-Volt Direct Suspension Overhead Trolley Contact, C15-1935

Proprietary Sponsor: American Transit Association

Dimensions of Photographic Paper (Roll Leaders and Limit Signal), Z38.1.4-1942

Sponsor: Optical Society of America

New Project Initiated

Women's Nylon Hosiery

New Project Requested

Indiana Limestone

Requested by: Indiana Limestone Institute

Books Related to Standardization

National Electrical Code Handbook. 6th Edition. By Arthur L. Abbott (McGraw-Hill Book Company, Inc, 330 West 42 Street, New York, N. Y., $4.00)

The purpose of this book is to enable the reader to grasp readily the general plan, scope, and intent of the National Electrical Code requirements as set forth in the 1947 edition as approved by the American Standards Association on October 4, 1946, to present more or less detailed discussions of the rules wherever anything of practical value can be contributed by such discussion, and to make the practical application of the rules clear and easily understandable.

The book, in its manner of indexing, clearly brings out the fundamental divisions of the Code: Part I covers definitions; Part II, approved types of wiring; Part III, installation of materials and apparatus; Part IV, general requirements for wiring installations; Part V, special installations and equipment; and Part VI, construction of materials.

Practical Electrical Wiring. 3rd Edition. By H. P. Richter (McGraw-Hill Book Company, Inc, 330 West 42 Street, New York, N. Y., $3.75)

Also based on the 1947 edition of the National Electrical Code, this book, however, does not include a detailed explanation of all subjects covered by the code. Rather, its scope has been limited to the wiring of structures of limited size and at ordinary voltages. In three parts, the book presents the fundamentals of electrical work, terminology, basic principles, and the theory behind general practices; the actual wiring of residential buildings and farms; and the actual wiring of nonresidential buildings, such as stores, factories, schools, and similar structures.

Projects Under Way

Safety Code for the Construction, Care, and Use of Ladders, A14—

A proposed revision of the American Standard Safety Code for Construction, Care, and Use of Ladders, A14-1935, is now being circulated to members of the sectional committee for approval as a result of action taken at a committee meeting on December 16, 1947.

The committee believes that the present code is no longer up to date and considers it desirable to develop a revised code to help reduce injuries from the use of ladders.

Among the more important changes set forth in the proposed American Standard Safety Code for Wood Ladders, A14.1, are the new dimensions given in the construction requirements for ladders. In setting up the minimum dimensions, the committee worked in close cooperation with the American Ladder Institute in order that minimum sizes would conform with the type of lumber now available. Actual experience with lumber sizes and measurements before and after processing for manufacture was the basis for the more practical applications given.

Another feature of the proposed revision is the complete rearrangement of the sections of the code according to ladder classification. All requirements for each ladder type are treated together in a section, thus aiding the user of the code to locate material easily and quickly.

Section 5.1.9, on the painting of ladders, has been rewritten and now establishes conditions under which the painting of ladders is permissible.

The American Ladder Institute, which has just recently become a Member-Body of the ASA (see INDUSTRIAL STANDARDIZATION, November-December 1947, page 286), has cooperated very fully in the preparation of this revision. It urges that all ladders be manufactured at or above the minimum specifications as set forth in the final code arrived at by Sectional Committee A14. It also plans to educate dealers and buyers as to what the minimum standards are and the proper use for the various types of ladders.

Requirements for metal ladders and for fixed ladders are not included in the present draft, and their status is under consideration by the committee and the sponsor.

Safety Code for the Use, Care, and Protection of Abrasive Wheels, B7—

Sponsors: Grinding Wheel Manufacturers Association; International Association of Industrial Accident Boards and Commissions

A revision of the American Standard Safety Code for the Use, Care, and Protection of Abrasive Wheels, B7-1943, has just been approved by the Board of Review of the American Standards Association. This standard, which is designed as a guide for safety in the use of abrasive wheels, includes specifications for protection hoods, flanges, chucks, and revolving cup guards, and rules for the proper storage, handling, and mounting of wheels.

The major changes in the code are intended to bring the rules into line with current practice. For example, the 1943 edition did not include any critical speeds for small mounted wheels and points using 3/32-in. spindles because there seemed to be no need for them at that time. Since then, however, there has been an apparent increase in the use of very small mounted wheels and points, and so two new tables have been added to the standard which cover these speeds.

The rule governing minimum spindle diameters for various sizes of wheels has been changed so that the tables of spindle sizes are advisory rather than mandatory. This change was made because experience has indicated that machines with spindles smaller than the minimum specified in the tables had been found satisfactory for certain work for which they were designed and the rule has been amended to permit these special applications.

The other change in the body of the code sanctions slightly higher speeds for Types 12 (Dish Wheels) and 13 (Saucer Wheels) to bring the rule into conformity with present practice. Diamond wheels have been subdivided into groups with different speeds allowed for each. The new speeds now conform with developments in the manufacture and use of diamond wheels which have taken place since 1943.

The additions to the Appendix, although containing no rules or specifications, include a set of sketches with notes describing the most common causes of failure of threaded hole wheels of the cone or plug types. Descriptions of an adapter type of mounting for cup wheels on portable grinders and of rubber faced protection washers are also included.

The American Standard Safety Code for the Use, Care, and Protection of Abrasive Wheels, B7.1-1947, will be available in March from the American Standards Association at 75 cents.

Radio-Electrical Coordination, C63—

Sponsor: Electrical Standards Committee

As a result of recommendations of a special committee set up at the July 11 meeting of the sectional committee to plan its future work, three subcommittees were appointed at the December meeting of the committee to carry forward the work of this project.

A technical subcommittee was established to (*a*) follow closely and coordinate the programs of various other committees and organizations, (*b*) cooperate in the development of the needed techniques and instruments, (*c*) prepare for submission to the sectional committee proposed standards whenever the necessary basic material becomes available, and (*d*) suggest to the sectional committee research or development projects necessary to insure a well-rounded overall program. A group smaller than the entire sectional committee is needed, it was felt, to carry on these tasks. R. S. Tucker, representing the ASA Telephone Group, was appointed chairman of this group.

Subcommittee 2 on Definitions and Terminology will be headed by C. C. Chambers of the Institute of Radio Engineers. This subcommittee will fill what appears to be a gap in present activities, but it is expected that it will work closely with the Sectional Committee on Definitions of Electrical Terms, C42.

The third subcommittee set up at the meeting, Subcommittee 3 on Relations with the International Special Committee on Radio Interference (CISPR), is intended to make the committee authorized at the meeting of July 11, 1947 a permanent one. W. F. Davidson, representing the Electric Light and Power Group, was appointed chairman of this subcommittee.

A report on the CISPR meeting at Lucerne, Switzerland, the week of October 20, was given by L. W. Thomas of the U. S. Navy Department, Bureau of Ships, chairman of the American delegation to the Lucerne meetings. The other American delegates were: H. H. Beizer, Signal Corps Engineering Laboratories; C. C. Chambers, University of Pennsylvania; H. E. Dinger, Naval Research Laboratory; and C. M. Foust, General Electric Company.

Mr Thomas reported that since the meetings a year ago in London, considerable work on radio interference has been done in Great Britain, Belgium, and Switzerland. France and Czechoslovakia are also giving attention to interference problems.

The delegates showed keen interest in American equipment which was demonstrated at the conference. Following the demonstration of this equipment and discussion in the meetings, it was quite evident that no one had intended to adopt the present CISPR meter as an international standard. It was brought out that at the CISPR meetings in 1939 there had been no intention of referring to any particular instrument as the standard. This immediately dispelled many of the fears in the minds of Americans who have been working under the misapprehension that the European nations were anxious to have the CISPR instrument set up as the international standard.

Great interest was shown at the conference in the research work being carried on in this country. When the place for the next meeting was mentioned, it was strongly hoped that it could be held in the United States so that the representatives from other countries might gain some firsthand information concerning the work being done on radio-interference here.

Standards for Electric Lamps, C78—

Sponsor: Electrical Standards Committee

Twenty-five proposed single-sheet standards covering general service, instant-start, long-tube hot-cathode multiple-burning, and cold-cathode series-burning fluorescent lamps and bactericidal lamps were approved by Subcommittee 2 on Electric Discharge Lamps at its meeting on November 6, 1947. These proposed standards will be forwarded to the sectional committee for approval in the near future.

Textile Test Methods, L14—

Sponsors: American Association of Textile Chemists and Colorists; American Society for Testing Materials

At the December 8 meeting of Sectional Committee L14, it was voted to authorize appointment of a subcommittee to assist the American Association of Textile Chemists and Colorists, one of the sponsors of

the project, in obtaining information on the washfastness of fabrics. This subcommittee will collect data concerning the number of washings and wearings that fabrics for various uses can undergo before they are discarded. It will also attempt to find out whether various garments are discarded because of color change or physical deterioration or for other reasons. Some attempt will be made to determine just how much color change must take place before a garment is considered unsatisfactory. This information will be made available to the AATCC for developing washfastness test methods which will predict actual performance in use.

Women's Occupational Clothing, L17—

Sponsor: Associated Manufacturers of Washable Service Apparel, Inc

The personnel of Sectional Committee L17 has been approved by the Executive Committee of the Consumer Goods Committee, thus marking the complete reorganization of the war project on Women's Industrial Clothing (see INDUSTRIAL STANDARDIZATION, October 1947, page 263).

At the meeting of the sectional committee held on November 19, 1947, two tables prepared by the Subcommittee on Minimum Garment Sizes were discussed. Table I, which contains women's body measurements based on a revision of the body measurements used for developing the war standards, was voted to letter ballot of the sectional committee. It was also voted to send out Table II on Minimum Finished Garment Measurements to letter ballot for approval by the sectional committee after certain explanatory notes regarding styles of garments, shrinkage, and intended use of the table were included.

Since the size standards seem to be well under way, it was agreed that a subcommittee be appointed to consider the next steps to be taken by the sectional committee in carrying out the scope of the project.

Women's Nylon Hosiery, L21—

Sponsor: National Association of Hosiery Manufacturers

The Executive Committee of the Consumer Goods Committee has formally approved the initiation of a new project on Women's Nylon Hosiery with the National Association of Hosiery Manufacturers to serve as sponsor. The scope for the project will be specifically determined after organization of the sectional committee.

In initiating the request for such a project under ASA procedure, the NAHM emphasized that although it had been interested in standards for hosiery for a number of years, its Women's Hosiery Advisory Committee had recommended that the year 1947 be utilized for preliminary assembly of facts and suggestions and for advanced consultation. During that period the industry could determine whether the yarn supply was adequate, what the reaction of the consumer was to this relatively new product, and the manufacturer would gain more experience in the production of nylon hosiery.

In addition to calling on the technical and merchandising experience and skill of those who will serve on the ASA sectional committee, the sponsor announced that it has made arrangements with the American Society for Testing Materials for the development of any methods of testing hosiery which the committee might request.

Office Standards, X2—

Sponsor: National Office Management Association

The scope of work of the five subcommittees of the Sectional Committee on Office Standards is now being drafted into formal statements and approved by the committee.

A special Subgroup on Color, composed of representatives of Subcommittee 1 on Office Equipment (Furniture), Subcommittee 5 on Business Machines, and the Division on Physical and Physiological Factors of the National Office Management Association, is being established to handle color standards applicable to this project.

The Administrative Committee of Sectional Committee X2, in its meeting of December 5, 1947, considered a proposal for an international project which had been suggested by the Swedish standards body and patterned after its own Swedish program on Printing Standards. As the project dealt with standardization relating to printed matter, certain of its segments definitely fell within the scope of the office standards project. Actual participation in the technical work would not be feasible at this time, however, due to the lack of any such standards in the United States, the committee decided.

Subcommittee 5 has sent out a questionnaire on business machines to 7,000 NOMA members and a selected list of other national organizations in an effort to establish priorities which should be given to standards to be developed in that field.

Letter Symbols and Abbreviations for Science and Engineering, Z10—

Sponsors: American Association for the Advancement of Science; American Institute of Electrical Engineers; American Society of Civil Engineers; American Society of Mechanical Engineers; American Society for Engineering Education

The subcommittee on Standardization of Letter Symbols for Aeronautics and Aerodynamics held its first formal meeting in Atlantic City on December 3, 1947.

In a discussion of the personnel of the subcommittee, it was decided to make an effort to obtain official representation from more Federal government groups and several other professional societies.

It was unanimously resolved to request the National Advisory Committee for Aeronautics either to postpone or label as tentative its forthcoming revised lists of nomenclature and symbols for aeronautics pending study and approval by members of the subcommittee. This would avoid confusion which might arise from an official release of the new NACA list while the Z10 group is still active.

A list of suggested symbols, selected because they have been established by fairly general usage or because they readily connote broad concepts to which inflection in meaning may be applied by appropriate use of subscripts, was submitted to the subcommittee and will be distributed for criticism and comment.

Safety Code for Exhaust Systems, Z9—

Sponsor: International Association of Industrial Accident Boards and Commissions

The Sectional Committee on the Safety Code for Exhaust Systems, Z9, inactive during the war, has been reorganized and held its first meeting on December 3, 1947. Dr Theodore F. Hatch, representing the American Industrial Hygiene Association, was elected chairman of the committee. Action was taken to reactivate the work of the group in developing safety standards for exhaust ventilation of injurious dusts, gases, and vapors.

T. F. Hatch

Dr Allen D. Brandt, representing the American Public Health Association, was appointed chairman of a subcommittee to review the Fundamentals Relating to the Design and Operation of Exhaust Systems, published in 1936, and to revise it if necessary in the light of developments in that field since the original report was prepared.

A subcommittee under the chairmanship of Arthur C. Stern, of the American Society of Mechanical Engineers, will prepare a list of operations for which exhaust ventilation should be recommended.

A third subcommittee appointed at the meeting is headed by William B. Harris of the American Conference of Governmental Industrial Hygienists. It will study present activities of other groups interested in the field of exhaust ventilation and will report to the sectional committee on the work of these groups in relation to the work of the committee.

This project, which is sponsored by the International Association of Industrial Accident Boards and Commissions, is guided by the following scope:

"Standards for the design, operation, and maintenance of equipment to provide a safe atmosphere by removing harmful substances from their point of production or issuance and by safely disposing of such substances; and such supplementary standards on personal protection as may be necessary to prescribe methods for the protection of workers."

Drawings and Drafting Room Practice, Z14—

Sponsors: American Society of Mechanical Engineers; American Society for Engineering Education

This committee has prepared a proposed American Standard for Principles Governing Design and Dimensioning (of Drawings) with Tolerances and Allowances for Interchangeable Manufacture which is being circulated to American industry by the ASME and through the American Standards Association to the Canadian and British standards bodies for comments and criticism.

The proposed standard was developed by a subcommittee of Sectional Committee Z14 under the chairmanship of H. L. Keller, Ohio Crankshaft Company, TOCCO Division, which based its report on a paper presented by C. A. Gladman, Sci-

entific Officer of the National Physical Laboratory in England, before the Institution of Mechanical Engineers. The paper described the work which had been done by a special service committee on drafting practice.

The basic principles and definitions prepared by the subcommittee were discussed at the Ottawa Conference in 1945 and subsequently revised. It is this revised tentative draft which is now being circulated to industry for critical review before a final revision is made.

Standardization in the Field of Photography, Z38—

Sponsor: Optical Society of America

The members of the Sectional Committee on Standardization in the Field of Photography are voting by letter ballot on a number of proposed standards submitted at a meeting on November 13, 1947. Reports on the work of the various subcommittees are listed below.

Subcommittee 8 on Processing and Processing Equipment—

The committee voted to send to letter ballot 19 proposed specifications for photographic grade acids, hardeners, and miscellaneous chemicals submitted by Subcommittee 8. They are:

Acetic Acid, Glacial, Z38.8.100
Sulfuric Acid, Z38.8.101
Citric Acid, Z38.8.102
Boric Acid, Crystalline, Z38.8.103
Hydrochloric Acid, Z38.8.104
Sodium Acid Sulfate, Fused, Z38.8.105
Acetic Acid, 28 Percent, Z38.8.106
Aluminum Potassium Sulfate, Crystalline, Z38.8.150
Chromium Potassium Sulfate, Crystalline, Z38.8.151
Formaldehyde Solution, Z38.8.152
Paraformaldehyde, Z38.8.153
Sodium Sulfate, Anhydrous, Z38.8.175
Sodium Acetate, Anhydrous, Z38.8.176
Potassium Dichromate, Z38.8.177
Potassium Permanganate, Z38.8.178
Potassium Ferricyanide, Z38.8.179
Copper Sulfate, Z38.8.180
Potassium Persulfate, Z38.8.181
Sodium Sulfide, Fused, Z38.8.182

The following proposed standards were also voted to letter ballot:

Method of Determining the Hypo Content of Processed Photographic Films, Z38.8.5
Dimensions for Photographic Trays, Z38.8.16
Hangers for Sheet Films and Plates, Z38.8.22
Hangers for X-Ray Films, Z38.8.23

Subcommittee 7 on Printing and Projection Equipment—

The subcommittee submitted the following American Standards for reaffirmation:

Specifications for Projectors for Opaque Materials for Use in Small Auditoriums, Z38.7.4-1944
Specifications for Contact Printers, Z38.7.10-1944
Specifications for Printing Frames, Z38.7.11-1944
Specifications for Masks (Separate) for Use in Photographic Contact Printing, Z38.7.12-1944

The committee also voted to send to letter ballot three proposed revisions of American Standards as follows:

Methods of Testing Printing and Projection Equipment, Z38.7.5-1943
Dimensions for Lantern Slides, Z38.7.13-1944
Specifications for Lantern Slide Projectors, Z38.7.14-1944

Subcommittee 5 on Photographic Characteristics of Illuminants—

The subcommittee decided to divide the American War Standard Specification for Photographic Flash Lamps, Z52.43-1944, into two parts, the first of which would cover methods of testing and classification, and the second to cover specification limits. The first part of the proposed revision was submitted and voted to letter ballot action of the sectional committee; the second part will be submitted later.

Subcommittee 4 on Exposing Equipment—

Four revisions of American Standards submitted by this group were ordered to letter ballot of the sectional committee:

Cameras (Tripod Connections for American Cameras), Z38.4.1-1942
Cameras (Tripod Connections for European Cameras with Adapter for American Tripods), Z38.4.2-1942
Shutter Cable Release Tip and Socket with Taper Thread, Z38.4.5-1942
Shutter Cable Release Tip and Socket with Straight Thread, Z38.4.6-1942

The subcommittee has prepared five proposed standards which were also ordered to letter ballot of the sectional committee. They are:

Method of Determining Performance Characteristics of Between-the-Lens Shutters Used in Still Picture Cameras, Z38.4.22
Method of Determining Performance Characteristics of Focal-Plane Shutters Used in Still Picture Cameras, Z38.4.23
Exposure-Time Markings for Between-the-Lens Shutters, Z38.4.24
Exposure-Time Markings for Focal-Plane Shutters, Z38.4.25
Flash Synchronizing Equipment Connecting Cord Ends and Pins, Z38.4.26

Subcommittee 3 on Supports for Sensitive Coatings—

Subcommittee 3 submitted American Standard Definition of Safety Photographic Film, Z38.3.1-1943, for reaffirmation. This was ordered to letter ballot of the committee.

Subcommittee 2 on Sensitivity to Radiant Energy—

Minor modifications have been made to the proposed standard for Photographic Exposure Meters (Photoelectric Type), Z38.2.6, as a result of comments received on the letter ballot of the first draft. The sectional committee will have an opportunity to review the changes which have been made since the letter ballot of the sectional committee. It is hoped that the proposed revision of the American Emergency Standard Photographic Exposure Computer, Z38.2.2-1942, will soon be ready for letter ballot action of the sectional committee.

A letter ballot will also be taken of the sectional committee on the proposed withdrawal of approval of American War Standard Photographic Filter Terminology and Nomenclature, Z52.61-1945. It was voted to give consideration to the development of a standard similar to this war standard for peacetime use.

Subcommittee 1 on Physical Dimensions of Sensitive Materials—

A proposed American Standard Dimensions for Radiographic Intensifying Screens, Z38.1.50, was ordered to letter ballot, together with a proposed revision of American Standard Dimensions of 70-Millimeter Perforated (and Unperforated) Film (Cutting and Perforating Standard), Z38.1.3-1941. Soon to go out to letter ballot of the committee is the proposed American Standard Dimensions for Double Sheet Film Holders (Lock-Rib Type), Z38.1.51.

Standardization of Optics, Z58—

Sponsor: Optical Society of America

The organization meeting of the new Sectional Committee on Standardization of Optics, Z58, took place on November 14, 1947. Francis W. Sears, representing the Optical Society of America, is chairman of the committee and Arthur R. Spence, ASA staff, is secretary.

F. W. Sears

The committee voted to accept the scope for the project which had previously been approved by the Standards Council. It reads:

"The formulation of terminology, definitions, standards, and specifications in the general field of optics; and the establishment of methods of testing, rating, and classifying the performance characteristics of materials and devices used in optics; including the methods for the specification and description of color and also including the psychophysics of vision."

The establishment of ten subcommittees to carry on the work of the project was agreed upon at the meeting. These subcommittees will cover the following subjects:

1. Nomenclature, definitions, symbols
2. Sources of optical energy
3. Filters and polarizing sheet materials
4. Mirrors, prisms, and lenses
5. Mountings for optical elements
6. Physical detectors of optical energy
7. Color measurements
8. Vision
9. Spectrographic equipment
10. General optical instruments

The next meeting of the committee is tentatively planned for May.

Indiana Limestone—

The Indiana Limestone Institute has requested that the American Standards Association prepare a standard specification for Indiana limestone as a building material. The ILI already has such a specification, and this is now being edited for submittal as an American Standard under the Existing Standards Method.

Under the Existing Standards Method, a standard of any responsible organization may be submitted for approval, and may be approved by the ASA without having gone through a sectional committee if it has the necessary consensus of those substantially concerned with its scope and provisions. Standards approved under this method may be revised under any other method of the Association.

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.....	Z38.8.3-1947	**Photographic Processing Manipulation of Films and Plates, Practice for** This standard, one of a series of American Standards for Photography (other than Cinematography), applies to operations concerned with the processing of silver halide photographic layers involving developing, rinsing, fixing, washing, and drying of films and plates, excluding reversal and color processes. (*Sponsor:* Optical Society of America)	.50

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